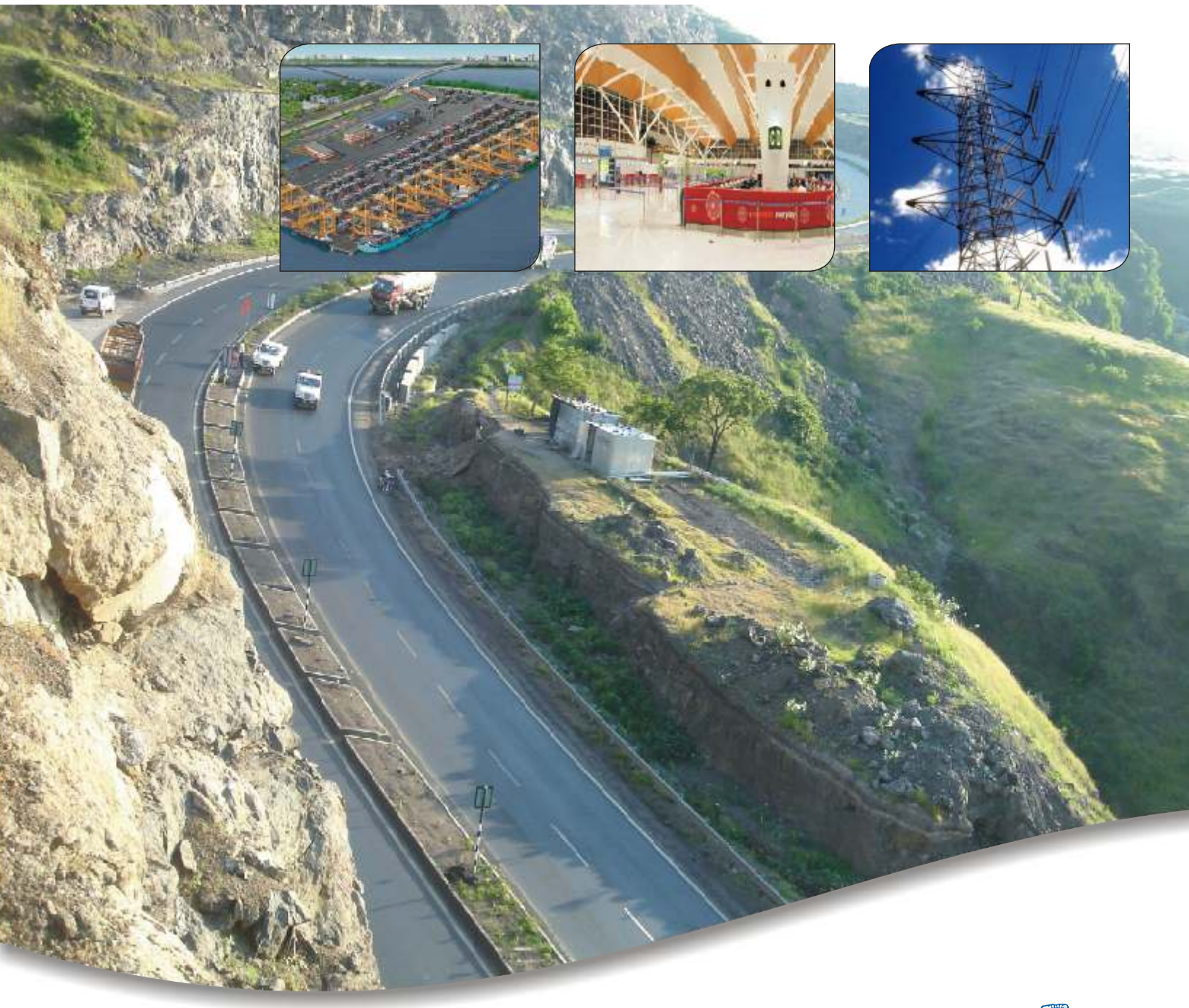
Annual Report to the People on Infrastructure

2009-10



Planning Commission
Government of India
New Delhi

Annual Report to the People on INFRASTRUCTURE

2009-10

PLANNING COMMISSION
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Foreword

The President's address to the Joint Session of Parliament on 4th June, 2009 announced the preparation of five Annual Reports to the People on Education, Health, Environment, Employment and Infrastructure. These were to be presented to the people for initiating debate/discussions on the various thematic issues. I am, therefore, pleased to release "The Annual Report to the People on Infrastructure (2009-10)" as prepared by the Planning Commission in consultation with the various Ministries dealing with infrastructure sector.

Infrastructure plays a vital and often decisive role in determining the overall productivity and development of country's economy hereby decisively affecting the quality of life of the citizens. Various plan documents lay emphasis on the development of this sector. However, the infrastructure deficit continues to increase. The UPA Government has accorded higher priority to the development of infrastructure sector.

In order to meet the infrastructure requirements to support and sustain the high growth rate, it is necessary to mobilise resources. The bulk of infrastructure requirement would continue to be financed from public resources, however, our continued ability to do so is limited. We have to increasingly depend on private sector to meet the financial requirements of this sector.

Various steps have been taken to meet these challenges. Cabinet Committee on Infrastructure has been constituted. Apart from considering and taking decisions in respect of major infrastructure projects, this Committee considers issues of investment in infrastructure including approvals to facilitate private sector partnership in specific projects. It is also expected to lay down targets for performance of all infrastructure sectors. The Annual and Quarterly targets for 2010-11 in respect of Power, Railways, Roads, Ports and Airports have already been finalized and put in the public domain.

The Report has attempted a critical analysis of the developments that have taken place in these sectors during 2009-10 and indicates targets for 2010-11. As is evident from the Report, significant achievements have been made in the previous year. There is evidence of a robust momentum of growth in Power, Ports, Civil Aviation, Railways and Roads. The Report also indicates the targets for the next year, particularly, for Power, Railways, Roads, Ports and Airports.

I am confident this Report will generate a constructive debate on different aspects of policy and strategy needed to achieve our objective of strengthening the infrastructure services. I would look forward to your views and comments on various issues concerning the development of infrastructure sector in the country. Your feedback would help us in devising plans, policies and programmes for giving the citizens of India quality infrastructure services.

(Montek Singh Ahluwalia)

EXECUTIVE SUMMARY

Infrastructure services have shown signs of revival during 2009-10 from the recent global economic crisis that had affected many sectors. The unmistakable signs of revival were seen in the robust momentum of growth in telecom services and signs of recovery in power, ports, civil aviation, railways and roads. The report presents a critical analysis of the developments that took place in these sectors during 2009-10.

2. Indian Railways (IR) with its vast network of more than 64,015 route kilometres is the third largest railway in the world under a single management. The Eleventh Five Year Plan (2007-2012) envisaged a 51 per cent increase in freight traffic and a 32 per cent increase in passenger traffic with focus on capacity enhancement, technological upgradation and service improvement. In 2009-10, railways recorded lifting 888 million tonnes of revenue earning originating freight traffic and moving 7442.65 million passengers against the target of 882 millions tonnes of originating freight traffic and 7384.00 million passengers respectively. To enhance its existing capacity, 258 kms of new lines were laid, work on 450 kms of track doubling was completed and gauge conversion of 1,516 kms carried out against a target of 250 kms, 500 kms and 1,400 kms respectively. It also electrified 1,117 Track Kilometre (TKM) exceeding the target of 1000 TKM. For 2010-11, the railways have set a target of construction of (a) 1019 kms new lines, (b) doubling of 767 kms; (c) gauge conversion of 834 kms; (d) electrification of 1000 TKM and to move originating freight of 944 MT, besides moving originating passengers numbering 7773.07 million. In addition, construction of dedicated freight corridors and improvement of other infrastructure facilities viz. modernisation of railway stations, provision of clean drinking water, and introduction of new fast passenger trains etc. is envisaged.

3. The total length of the National Highways (NHs) is 70,934 kms. This constitutes about 2 per cent of the country's total road network and carries 40 per cent of the total road traffic. The main objective of development of the NHs is to improve mobility. This objective is being achieved through implementation of the expanded National Highway Development Programme (NHDP). In 2009-10, the targets could not be achieved. However, compared to the past, the performance of National Highways Authority of India (NHAI) in 2009-10, particularly in the second half of the year, was encouraging. A number of measures mainly relating to processes and procedures have been undertaken to expedite the work. With these measures, the pace of implementation is likely to pick up. The progress with regard to work on National Highways (NHs) not covered by NHDP has been satisfactory. The progress of work on Special Accelerated Road Development Programme for North East (SARDP-NE)

and development of roads in the Left Wing Extremist affected areas has been slow, but is likely to accelerate in 2010-11. The development of rural roads under Pradhan Mantri Gram Sadak Yojana (PMGSY) has been quite satisfactory. The first phase under Bharat Nirman is likely to be completed in 2010-11.

4. About 95 per cent of India's merchandise trade accounting for 70 per cent of its total revenue is carried out through maritime transport. Ensuring efficient and safe ports is therefore the main goal of development of ports. Traffic growth at the ports was modest at 2.7 per cent in 2008-09. During 2009-10, the major ports handled 560.97 million tonnes (MT) registering an increase of 5.74 per cent over the previous year. However it fell short of the target of 581.33 MT. Capacity augmentation of ports in the first three years of the Eleventh Plan has not been satisfactory. Against the Eleventh Plan target of additional capacity generation of 511.80 MT, capacity equivalent to 95 MT was added in the first three years of the Plan. Bulk of the capacity creation was envisaged to come up through private sector participation. With the finalisation of relevant processes and procedures, 13 Public Private Partnership (PPP) projects were awarded in 2009-10 at an estimated cost of Rs.2653.41 crore and with a capacity of 65.65 Million Tonnes Per Annum (MTPA).. In 2010-11, 21 projects are to be awarded. The private sector is estimated to invest Rs.13891 crore in 2010-11.

5. Upgradation and modernisation of a number of Metro and Non-Metro airports have been undertaken in order to meet the traffic demand as well as to create a world-class airport infrastructure. The important projects completed during 2009-10 include (a) the integrated Terminal T-3 project at Indira Gandhi International (IGI) Airport, New Delhi (b) Construction of the new domestic terminal T1C at Chhatrapati Shivaji International (CSI) Airport, Mumbai. Projects to enhance the capacity of Chennai and Kolkata Airports are in progress. Out of 35 Non-Metro airports, 12 airports have been completed in 2009-10. In 2010-11, the major projects that would be in progress include (a) shifting of Air Traffic Control (ATC) tower at IGI, New Delhi (b) construction of a new terminal at Mumbai (c) expansion of terminal & apron at Bengaluru Airport (d) modernisation/expansion of runway at Kolkata and Chennai airports etc. The work on 14 Non-Metro airports is also likely to be completed in 2010-11.

6. The power sector has received utmost priority in the successive Five-Year Plans, resulting in the utility-based installed generation capacity rising from 1,362 Mega Watt (MW) at the time of independence to 1,60,000 MW today. A capacity addition of 9,585 MW was achieved during the Annual Plan 2009-10, which though lower than the target (14,507 MW), has so far been the highest in any single Annual Plan period. The capacity will be increased to 20,359 MW during 2010-11. The total generation envisaged for 2009-10 was 789.51 Billion Unit (BU), against which the actual achievement has been at 771.17 BU (97.68 per cent). Scanty rainfall caused a shortfall in the case of hydroelectricity generation. The marginal shortfall in thermal generation of 1.23 per cent was compensated by increased

generation from gas based projects. Annual Plan 2010-11 has set a target of 830.77 BU. To ensure the availability of coal and gas several steps such as development of coal blocks and setting up of LNG terminal etc. have been initiated. All states participating in Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) have notified their rural electrification plan and notified formation of District Committees. Annual Plan 2009-10 set a target to electrify 17,500 un-electrified villages and 47 lakh Below Poverty Line (BPL) Households against which 18,374 villages and 47.18 lakh Households were electrified. For 2010-11, electrification target of 17,500 villages and 47 lakh BPL Households has been set.

7. The rapid development in the Information Technology (IT) and telecommunication sector has been possible with strong private sector participation and a proactive and industry friendly regulatory support from the Government. The present tele-density is more than 53 per cent with 621.25 million connections (as on April 2010), propelled by wireless subscribers growing at a compound annual growth rate (CAGR) of 60 per cent per annum since 2004. The introduction of Third Generation (3G) telecom services will facilitate high speed data communications including voice and video through mobile. The number of broadband subscribers grew from a meagre 0.18 million as on March 2005 to about 8.77 million, by February 2010. Broadband connectivity is likely to get a further boost with the auctioning of spectrum for Broadband Wireless Access (BWA) Service and setting up of Common Service Centres (CSCs). However, there was large difference between rural tele-density (24 per cent) and urban tele-density which was at119 per cent as on March 2010. In order to increase rural tele-density, the Department has been encouraging identification of new spectrum bands and sharing of infrastructure etc. Government is also taking measures under Universal Service Obligation (USO) Fund to boost broadband and telecom infrastructure in rural areas. India is fast emerging as a hub for global telecom manufacturing and the production and export of telecom equipment in the country are on a steady rise. Leading global players have made significant investments in setting up manufacturing units in India.

8. The phenomenal growth of IT during the last decade has had a perceptible multiplier effect on the Indian economy. It has had a tremendous impact on government efficiency, fostered transparency and improved services to the citizens, and has had a positive impact on the growth of national income and GDP. The rollout of critical core infrastructure has helped in the implementation of mission mode projects under the National e-Governance Plan (NeGP). As on March 2010, 19 States/ UTs have implemented State Wide Area Networks (SWANs) and 76,100 Common Service Centres (CSCs) in 29 states were rolled out. The Department of Information Technology is expected to establish CSCs in all 2,50,000 Panchayats (under Bharat Nirman) in the next three years.

9. Expansion of Irrigation facilities, along with consolidation of the existing systems, has been the main part of the strategy for increasing production of food

grains. The Eleventh Plan had set a target of creating irrigation potential of 9.5 million hectare (mha) through major and medium (5.00 m.ha.) and minor (4.5 m.ha.) projects. Irrigation potential (both new and restored potential) of 7.316 m.ha. was created through major, medium and minor projects from 2005 to 2009. During 2009-10, the target for creation of irrigation potential was 1.19 mha through major and medium irrigation projects and 0.751 mha through the minor projects. Annual Plan 2010-11 proposes further creation of irrigation potential of 2.02 m.ha.

10. The 2009-10 targets under National Rural Drinking Water Programme (NRDWP) were to cover 586 'not covered' habitations, 1.23 lakh 'slipped back' habitations and 34,595 'quality affected' habitations. Against this, 253 'not covered' habitations and 1.18 lakh 'slipped back' habitations were covered and 32,129 'quality affected' habitations were addressed. During 2010-11, coverage of 1.1 lakh slipped back habitations and 25,000 water quality affected habitations has been targeted under NRDWP.

11. By the end of 2009-10, Total Sanitation Campaign (TSC) projects had been sanctioned in 606 districts across the country. These are to be completed by 2012. Since the scheme is demand-driven, no annual targets are fixed in advance. However, the campaign was successful in the construction of 125.2 lakh individual household latrines and 1.44 lakh school toilets.

12. Under the Jawaharlal Nehru Urban Renewal Mission Urban (JNNURM), launched by the Hon'ble Prime Minister in 2005, the Annual Plan 2009-10 set aside a sum of Rs.5960.13 crore for Urban Infrastructure & Governance (UIG) and Rs. 3082.82 crore for Urban Infrastructure Development of Small & Medium Towns (UIDSSMT). While UIG aims at integrated development of infrastructural services in 65 selected (Mission) cities, the latter focuses on Infrastructure development and slum development in small and medium towns providing them with water supply, sewer, storm water drainage and solid waste management facilities. The expenditure during 2009-10 under the two heads have been Rs.3039 crore and Rs.299 crore respectively. The major portion of allocation of Rs.6517.12 crore for UIG and Rs.1508.71 crore for UIDSSMT for 2010-11 is expected to be utilised for completion of ongoing water supply, solid waste management and sewerage and drainage projects. The Brihan Mumbai Storm Water Drainage Project (BRIMSTOWAD), a storm water drainage project for Mumbai, being implemented with 100 per cent Additional Central Assistance (ACA), is scheduled to be completed by March, 2011.

13. More than 10 lakh dwelling units were approved under Basic Services to Urban Poor (BSUP) scheme while another 4.70 lakh units were approved under the Housing & Slum Development Programme (IHSDP). The programmes were allocated Rs.2524.65 crore and Rs.1117.58 crore respectively in 2009-10. Out of these only 1.58 lakh under BSUP and around 59 lakh dwelling units under IHSDP have been completed. The remaining units are required to be completed in the next two years. An allocation of, Rs 2336.32 crore and Rs.1007.28 crore for

BSUP and IHSDP respectively have been provided for the year 2010-11.

14. Encouraging private partnerships and Public Private Partnership Models to provide various services is one of the key elements of JNNURM. The Ministry of Urban Development has so far approved 68 projects costing Rs.7858 crore under Public Private Partnership (PPP). These include 40 solid waste management projects, five water supply, two sewerage and 19 road transport projects.

15. To strengthen urban transport system 15,260 buses with admissible Additional Central Assistance (ACA) of Rs.2092 crore were sanctioned to the Mission cities under JNNURM. The first instalment of Rs.1037 crore was released in 2009-10. It is expected that all the 15,260 buses will be procured during 2010-11.

16. In view of completion of ongoing corridors of Phase II of Delhi Metro before the Commonwealth Games, against an equity of Rs.790.79 crore and Pass Through Assistance (PTA) of Rs.1,310 crore for 2009-10, the revised allocation is Rs.1,162.34 crore and Rs.2,985.00 crore respectively. It is expected that Phase II metro projects will be completed as per the schedule. Other metro projects viz., Bengaluru, Kolkata and Chennai Metros are at various stages of implementation. Equity of Rs.995 crore and PTA of Rs.3322.21 crore has been provided for all metro projects for 2010-11.

CHAPTER-1

RAILWAYS

Introduction

1.1 Indian Railways (IR) with its 64,015 kilometre network is the third largest railway in the world under a single management. Some key statistics for Indian, Railways have been shown in Table 2.1. The Eleventh five year plan document emphasised that "The Indian railways is at threshold of major change". The key challenges before it is to meet the accelerated transport demand and provide high quality service. Thus, capacity enhancement, technological upgradation and service improvement of Indian Railways are the major thrust areas of the Plan It had envisaged 51 per cent increase in freight traffic and 32 per cent increase in passenger traffic during the plan period. The Plan had anticipated an expenditure of Rs.2,51,000 crore on various capacity enhancement and replacement programmes. A major part of the investment is expected to come from internally generated resources besides feasible budgetary support. Around Rs. 1,00,000 crore is expected from extra budgetary resources including that from Public Private Partnership (PPP), during the Plan period.

Goals, Targets & Achievements during 2009-10

Outlay and Target

1.2 An outlay of Rs. 40,745 crore comprising Rs.15,800 crore of Gross Budgetary Support (GBS), Rs.15,675 crore of internal resource generation and Rs.9,270 crore of market borrowing, was provided for 2009-10. As per the revised estimates 2009-10, the railway could realise an amount of Rs.40,285 crore consisting of Rs.17,699 crore as GBS, Rs.12,786 crore as internally generated resources, and Rs.9,800 crore of market borrowing. Annual Plan 2009-10 set a target for 882 million tonnes of revenue earning freight traffic against which it recorded lifting 888 million tonnes. It was a marginal rise from 850 million tonnes that was lifted in 2008-09. As regards, passenger traffic, the Indian railways achieved the movement of 7442.60 million passengers as against an estimated target of 7384 million passengers during 2009-10.

Table 1.1: Some key statistics*

Route Kms	64015
Employees (lakhs)	13.86
Number of Stations	7030
Number of Passengers Trains Run Daily	10673
Number of Goods Trains Run Daily	7845
Diesel electric locomotives	4963
Electric locomotives	3586
Coaches	55095
Wagons	211763

* as on 31st March, 2009.

Capacity Enhancement

1.3 In view of the rise in freight and

passenger traffic, new lines are being laid and gauge conversion and doubling is being carried out. Apart from these, dedicated freight corridors are to be built. The following paragraphs give a brief overview of the progress of these works in 2009-10.:

New Lines

1.4 In the beginning of the year 2009-10, the Railways had more than 109 approved new lines projects with a throw forward (amount required to complete the projects) of Rs.50,400 crore. With construction of 258 kms of new lines, the Railways were able to achieve its set target for the year.

Doubling

1. 5 The year began with more than 126 approved doubling projects with an approximate throw forward of Rs.12,000 crore. As against the revised target of doubling 500 kms of tracks, the achievement was 450 kms. Doubling fell short of target because of problems faced in land acquisition, slow progress by contractors and complex working conditions in yards where modification to the existing layout was required. Efforts are being made to overcome these problems by speeding land acquisition through the Railway (Amendment) Act 2008 and better monitoring.

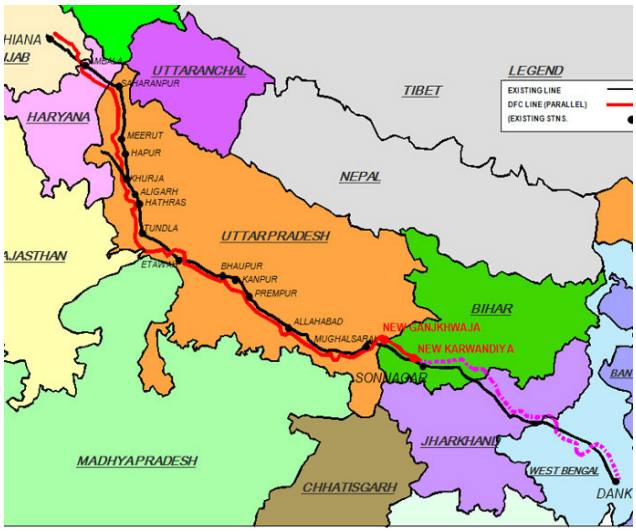

Figure 1.1. Eastern Dedicated Freight Corridor

Gauge Conversion

1.6 The Railways have increasingly sought to replace the Meter Gauge (MG) system with Broad Gauge (BG) in order to ensure seamless movement of traffic and passengers besides augmenting the carrying capacity. This Gauge conversion was started in the year 1992. In 2009-10 against the revised target of 1,400 kms, 1,516 kms were converted to Broad Gauge. There are more than 51 projects of gauge conversion with a throw forward of more than Rs.17,500 crore during 2010-11.

Railway Electrification

1.7 Electric traction not only reduces our dependence on diesel oil but also provides a pollution-free and energy efficient mode of transport. Presently, more than 18,000 route kilometres covering roughly 29 per cent of the total route kilometres1 are electrified. In the year 2009-10, railways have achieved electrification of 1,117 Track Kilometres (TKM)2 against the target of 1,000 TKM.

Dedicated Freight Corridor (DFC):

1.8 Construction of two Dedicated Freight Corridors, one between Jawaharlal Nehru Port Trust (JNPT) and Dadri and the other

1 Route kilometre: Total length of Railway Network.

2 Track kilometre: Total distance of Railway line + extra distance covered due to multiple tracks.

Figure 1.2. Western Dedicated Freight Corridor

between Ludhiana and Dankuni has been planned. External funding is being sought for both the corridors. In 2009-10, the Cabinet approved Japanese assistance for implementation of the entire Western Corridor. Two loan agreements for Phase-I (Rewari-Vadodara) project were signed during the year. The first loan agreement which related to engineering consultancy services was signed in October' 09, while the second loan agreement regarding construction of the project was signed in March, 2010. Negotiations with World Bank for a loan agreement for Khurja – Mughalsarai section is also at an advanced stage. While all requirements for pre-appraisal have been met, loan negotiations and final consideration by World Bank Board is expected by 2010. The World Bank is also likely to fund the construction of the Ludhiana-Khurja section.

1.9 The DFCs, planned with higher axle-load and modern technology, provide an opportunity to achieve substantial segregation of freight and passenger traffic on the trunk routes and thus improve the speed and reliability of both freight and passenger services.

Rolling Stock Programme

1.10 Railways have continuously endeavoured to upgrade its rolling stock viz. locomotives, passenger coaches and wagons both in terms of technology and quantity to meet the growing demand of freight and passenger traffic in the country. New diesel and electric locomotives capable of carrying larger load with greater speeds are now being manufactured. Coaches are presently being manufactured at the Integral Coach Factory at Perambur and Rail Coach Factory (RCF) at Kapurthala. Newly designed coaches providing better comfort and enhanced safety features are being inducted into service. On 29 March 2010, a fully air-conditioned prototype double-decker coach with 128 seating capacity, the first of its kind in the country, was rolled out of RCF.

Manufacturing Units

1.11 The railway manufacturing units have the capacity to build 400-450 diesel and electric locomotives in a year. However, the Eleventh Plan assessed the annual requirement at 720 locomotives per year. To meet the gap, a diesel locomotive factory at Marhowra at a cost of Rs.2,052 crore and one electric locomotive factory at Madhepura at a cost of Rs.1,293.57 crore are to be set up. Both the projects have been approved

by the Cabinet and Request for Qualification (RFQ) was issued in 2009-10.

1.12 An ancillary unit for Chittaranjan Locomotive Works and a unit to manufacture components and sub assemblies for modern diesel locomotives are also being set up at Dankuni. These projects were sanctioned in 2009-10 at a cost of Rs 65.32 crore and Rs 110 crore, respectively. They are proposed to be developed through private funding by providing assured offtake for limited number of years.

1.13 Work on setting up of a new coach factory at Rai Bareilly began in 2009-10. To be set up at a cost of Rs.1,685 crore the coach factory will have a production capacity of 1,000 coaches per year. According to the Eleventh Plan, there is a requirement of 5,000 coaches per year. However, the existing manufacturing units of the railways produce about 3,000 coaches, supplemented by another 500 coaches from the private sector. The new coach factory is expected to meet the shortfall to an extent. Further, to augment the capacity, a new Rail Coach Manufacturing unit to manufacture Electrical Multiple Units (EMU) and Mainline Electrical Multiple Units (MEMU) coaches is planned to be set up at Kancharapara at a cost of Rs 860 crore. This project was sanctioned in 2009-10.

1.14. There is a perennial shortage of wheels which the railways intend to overcome through setting up of a wheels factory at Chhapra with an annual capacity of 1,00,000 wheels per annum. The setting up of the factory is already in progress and about 75 per cent of physical progress has been achieved by March, 2010. The factory is likely to be commissioned in 2010-11.

Service Improvements

1.15. Apart from the capacity enhancement works and rolling stock programme, improvement in services to the customer by way of better quality and standards is also of paramount importance to the railways.

Stations

1.16. Railway stations are the face of the railways. Upkeep of stations with provision of adequate facilities is crucial to customer satisfaction. Some of the infrastructure created during 2009-10 in order to improve services, are outlined below:

World Class Stations

1.17. Railway Stations need to be modernized to provide world class passenger amenities and services to its passengers. Fifty stations have been identified in the first stage of this large scale modernisation. Feasibility studies for New Delhi, Patna and Mumbai have been completed. Railways are planning to attract private investments for this modernisation project.

Adarsh Stations

1.18. Some of the railway stations are to be re-modelled into ‘Adarsh Stations’ containing basic facilities such as drinking water, adequate toilets, catering services, waiting rooms and dormitories. Of the 378 stations identified for the purpose, 286 stations were developed as Adarsh stations by end-March, 2010.

Multifunctional Complexes

1.19. Railways have decided to construct Multifunctional Complexes (MFCs) in station premises for providing rail users with shopping facilities, food stalls & restaurants, book stalls, PCO/STD/ISD/FAX booths, chemist shops, variety stores, budget hotels and underground parking. So far, 67 stations have been identified in this scheme.

Clean Drinking Water

1.20. Making clean bottled drinking water available to passengers at affordable rates is a priority for Railways. This project has been opened to the private sector and setting up of six bottling plants at Ambala, Amethi, Mal, Nasik, Farakka and Trivandrum have been planned through PPP mode.

Passenger Services

Duronto

1.21. Railways introduced the 'Duronto' train service during 2009-10. It is a non-stop point-to-point service with AC and non-AC sleepers between selected cities throughout the country. Fourteen such services have been introduced so far.

Yuva

1.22. "Yuva Trains" dedicated to the youth were introduced in 2009-10. These trains with air conditioned seated accommodation will run between major cities without in-between stoppages so that the youth, especially those belonging to the low income groups can travel at subsidized rates between these cities. Two such new low-priced fast train services are already in operation.

Freight Services

Liberalised Wagon Investment Scheme

1.23. A Liberalised Wagon Investment Scheme (LWIS) with provision for freight rebate for 20 years has been launched to encourage private investment in high capacity and special-purpose wagons. The rakes inducted under the scheme run on point-to-point or pre-specified close-circuit routes.

Kisan Vision

1.24. With a view to encourage setting up of cold storage and temperature controlled perishable cargo centres through Public Private Partnership mode, a task force was constituted with representatives of the Ministries concerned, Container Corporation of India Ltd. (CONCOR), Central Warehousing Corporation (CWC) and cold chain operators to draw up a road map. Six locations at Dankuni, Mechheda, Nasik, New Jalpaiguri, New Azadpur and Singur have been identified for the pilot project. Foundation stone for the first such pilot project was laid by Hon'ble Minister for Railways at Singur on 29th November, 2009.

Vision 2020

1.25 The Ministry of Railways brought out a Vision 2020 document in December 2009. The document spells out the Railways plan for massive network expansion by adding 25,000 kms of new lines, doubling of more than 30,000 kms of route, completing the gauge conversion programme and electrifying 33,000 kms of route.

Physical Targets – 2010-11

1.26 **Traffic**: The railways have targeted to move originating freight of 944 MT and originating passengers numbering 7773.07 million.

1.27 **Capacity Enhancement:** For capacity enhancement, the railways have targeted (a) construction of 1019 kms of new lines; (b) doubling of 767 kms; (c) gauge conversion of 834 TKM; and (d) electrification of 1000 TKM.

1.28 **Construction of Dedicated Freight Corridors:**

Western DFC

Phase I Vadodara – Rewari: Land acquisition notification for the entire length of 920 kms.

Phase II (a) Jawaharlal Nehru Port (JNPT): Vadodara & Rewari – Dadri – Notification for land acquisition for the entire 564 km length.

Phase II (b) Vaitarna-Bharuch Section: Annual Plan 2010-11 envisages an expenditure of Rs.240 crore and completion of 40 per cent of the construction of major and important bridges work under railway funding.

Eastern DFC:

Khurja – Kanpur Section: Issue land acquisition notification for the entire length of 342 kms. Similarly, for Kanpur – Mughalsarai Section: Notification for land acquisition for the entire 387 km length would be issued.

Mughalsarai – Sonnagar Section- 122 kms: Complete 55 per cent of the civil construction work.

Sonnagar – Dankuni Section- 534 kms: Issue land acquisition notification for the entire length of 300 kms.

Khurja – Ludhiana Section - 412 kms: Issue land acquisition notification for the entire length of 350 kms.

Way Forward

1.29 Issues that require to be addressed in the near future are: -

- Improving revenue generation and self-financing capacity of the railways. This may require re-balancing of tariffs.
- There is a large portfolio of new lines. Schemes require to be prioritised so that available resources are not too thinly distributed over a large number of schemes.
- The development of railways requires huge resources. In order to bridge the gap between availability of resources and requirement of funds, there is a need to involve private sector in the whole range of railway development programmes.

CHAPTER-2

ROADS

A. National Highways

2.1 The National Highways (NH) with aggregate length of 70,934 km., constitute about 2 per cent of the entire road network in the country but carry 40 per cent of the total road traffic. The main objective of development of NH is to improve mobility through augmentation of capacity and enhancing the riding quality of existing NHs. Towards this end, expanded NH Development Programme is being implemented under various phases.

National Highways Development Project (NHDP)

2.2. The National Highways Development Project (NHDP), the largest highway project ever undertaken by the country, was initiated in 2005 in a phased manner with the National Highways Authority of India (NHAI) as its implementing agency. Beginning with Phase I and II, the programme was expanded to seven phases.

2.3 **NHDP Phase I & II** envisaged 4/6 laning of about 14,000 km of National Highways, at an estimated cost of about Rs. 65,000 crore at 2004 prices. These two phases comprised the Golden Quadrilateral (GQ), North-South & East-West Corridors (NSEW), port connectivity and other projects. The GQ consists of 5846 km and connects four major cities, viz; Delhi, Mumbai, Chennai and Kolkata. The NSEW corridors of 7142 km, connects Srinagar in the North to

Kanyakumari in the South including a spur from Salem to Kochi and Silchar in the East to Porbandar in the West. The NHDP also includes the Port Connectivity Project comprising a length of 380 km for improvement of roads connecting 12 major ports in the country. Other projects involving a length of 965 km are also included in NHDP Phase-I&II.

Figure 2.1. Aerial view of one of the highways developed under NHDP

2.4 The massive 10-year programme (2005-15) is being implemented in a phased manner with an investment of Rs. 2,35,690 crore. programme includes:

- completion of the works under NHDP Phase I and II,
- upgradation of 12,109 km of national highways on Build, Operate and Transfer (BOT) basis in Phase III
- widening of 20,000 km of National Highways to two lanes with paved shoulders in NHDP Phase-IV ,
- six-laning of 6,500 km length of selected National Highways in Phase V,
- development of 1,000 km of Expressways under NHDP Phase-VI,
- construction of 700 km of ring roads in major towns and bypasses and construction of other standalone structures such as flyovers, elevated roads, tunnels, underpasses, grade separated interchanges etc. on national highways in NHDP Phase VII.

2.5 National Highways stretches that are not covered by NHDP are being developed through other programmes [mainly National Highway (original) (o)] of the Ministry of Road Transport & Highways.

2.6 In order to cater to the needs of remote, isolated and backward areas, two programmes, viz. Special Accelerated Road Development Programme in North-East (SARDP-NE) and Development of Roads in Left Wing Extremism Affected Areas have been launched.

Financial and Physical Progress for 2009-10

2.7 Against an outlay of Rs.20,450 crore for development of roads under various programmes of the Ministry of Road Transport & Highways, the expenditure (provisional) incurred was Rs.14,983.00 crore. Private sector investment of Rs.8573 crore in 2009-10 fell short of the estimated Rs.16658.00 crore. Progress in the case of widening of roads and award of projects also fell short of the target as shown in Table -3.1.

Table 2.1 : Physical Targets and Achievements during 2009-10 – NHDP Sections

Category	Target	Achievement
Widening to 4-lanes (km.)	3165	2693
Award of Projects (km.)	9800	3360

Reasons for Slow Progress

2.8 Delay in pre-construction activities, local law & order problem, poor performance by some contractors and adoption of new procedure and processes for approval of Public Private Partnership (PPP) projects were some of the reasons why the targets could not be met. Economic slowdown too adversely affected the progress of NHDP. However, compared to the past, the performance of NHAI in 2009-10, particularly in the second half of the year, has been encouraging.

Action Taken

2.9 A number of measures have been taken to expedite the progress of NHDP. These are:

- Appointment of senior officers as nodal officers for resolving problems associated with implementation of the NHDP such as land acquisition (LA), removal of utilities, forest/ pollution/ environment clearances etc. in the states. These nodal officers

hold periodic meetings to review the projects and take action to resolve the problems.

- Simplification of procedure for issue of land acquisition notifications.
- Increase of Total Project Cost (TPC) up to 20 per cent in case the estimated project costs are based on old detailed project reports (DPRs).
- Restructuring the project to reduce costs to make them financially viable.
- Release of entire Viability Gap Funding (VGF) (up to 40 per cent) during the construction period.
- Removal of the provision in Requests for Qualification (RFQ) limiting the maximum numbers of pre-qualified bidders.

Re-structuring of NHAI

2.10 One of the reasons for slow progress in implementation of NHDP is the inadequate implementation capacity of NHAI. To improve capacity and augment the skills, the Government took a decision to restructure NHAI. The important components of re-structuring of NHAI are as follows: -

- Selection of the Chairman by a Search Committee headed by the Cabinet Secretary. The tenure of the Chairman to be fixed for at least three years with provision for extension up to five years. Age in case of the Chairman to be relaxed up to 62 years, if required for three year tenure.
- NHAI to have six full time Members - one each for finance, administration, public private partnership (PPP), two members (Project) and one member (Technical).
- Increase in the number of part-time Members by two from the non-Government sector, one from IITs/IIMs and the other from financial institutions.
- Empowering the Authority to engage, where required, outside experts.

2.11 A Committee has been set up under the Chairmanship of Shri B.K. Chaturvedi, Member, Planning Commission to resolve the procedural issues with a view to expediting the National Highway Development Project. Among the various recommendations made by the Committee are:-

(a) building the maximum road length through BOT toll mode

(b) working out the broad work plan and financing plan

2.12 The other recommendations aimed at rationalisation of the process and procedures have been accepted by the Government. The implementation of recommendations is expected to expedite the progress of NHDP.

National Highways (Original) – Non-NHDP sections of NHs

2.13 Sections of national highways which are not covered under the NHDP are being developed by the Ministry of Road Transport & Highways through state governments. Against the RE outlay of Rs.4342.55 crore for 2009-10, the expenditure incurred on these was Rs.4299.97 crore (provisional). Details of physical targets & achievements are given in the Table-3.2.

Table 2.2 : Physical Targets & Achievements during 2009-10 – NH(O)

Sl. No.	Category	2009-10	
		Target	Achv.
1	Missing Link (km)	8.80	3.21
2	Widening to 2-lanes (km)	1,321	1234
3	Strengthening (km)	1,058	1012
4	Improvement of Riding Quality (km)	2,510	3168
5	Widening to 4-lanes (km)	79.50	69
6	Bypasses (No.)	6	0
7	Bridges /ROBs (No.)	132	122

Other Programmes

(a) Special Accelerated Road Development Programme for North East (SARDP-NE)

2.14 The programme is to be implemented in two phases i.e. Phase-A & Phase-B. Phase-A includes improving 6418 km of roads (including 2319 km of roads under Arunachal Package). The likely date of completion of Phase-A is 2015-16. Phase-B involves two-laning of 3723 km. of roads. It has so far been approved only for Detailed Project Report (DPR) preparation and investment decision is yet to be taken by the Government. Physical progress has been extremely slow, mainly due to inadequate implementation capacity, short working season and law-and-order problems.

(b) Special Programme for Development of Roads in the Left Wing Extremism (LWE) affected areas

2.15 A proposal for development of about 1,202 km. of national highways and 4,362 km. of state roads in areas affected by Left Wing Extremism (LWE) has been approved. The project is estimated to cost about Rs. 7,300 crore. The project covers 34 districts in eight states -- Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Orissa and Uttar Pradesh. Technical and financial sanction for all identified national highways & state road projects would be as per stipulated procedure for national highways works. Up to 31 March, 2010 sanction was issued for 2891 kms at an estimated cost of Rs.3261 crore. Works for 147 km length and costing Rs. 117.00 crore were awarded during 2009-10 under this programme.

Targets for 2010-11

2.16 An outlay of Rs.25,155 crore has been provided to the Ministry of Road Transport & Highways for the development of roads in 2010-11. The re-structuring of NHAI will also help speed up the implementation of NHDP. The 2010-11 targets for NHDP and non-NHDP sections of national highways are given in Tables 3.3. & 3.4 respectively.

Table 2.4: Non-NHDP Sections of National Highways

Sl. No.	Category	2010-11

Table 2.3: NHDP Sections of National Highways

(In Km.)

Sl. No.	Category	2010-11
		Target
1.	Construction to be completed	2500
2.	Highway Length to be tolled	2871
3.	Contracts / Concessions to be awarded	9000

		Target
1.	Missing Link (km)	2
2.	Widening from Single lane to 2-lanes (km)	1100
3.	Strengthening (km)	1000
4.	Improvement of Riding Quality (km)	1500
5.	Widening to 4-lanes (km)	70
6.	Bypasses (No.)	7
7.	Bridges / ROBs (No.)	85

Way Forward

2.17 Some of the issues that need to be resolved to take road development programme at higher level are:

1. Enhancing implementation capacity through
   - Restructuring of NHAI
   - Training
2. Flexibility in re-structuring of projects to be in sync with traffic requirement, safety concerns and availability of resources.
3. There is a need to build up expressway network for meeting the long term road transport traffic requirements.
4. There is a need to expedite the work on SARDP-NE. The capacity for evolving and implementation of projects in the North-East needs to be built up.

B. Rural Roads

Pradhan Mantri Gram Sadak Yojana (PMGSY)

Goals & Objectives

2.18 The primary objective of the PMGSY (launched in December 2000 as a fully funded Centrally Sponsored Scheme (CSS) was to provide connectivity, by way of an all-weather road (with necessary culverts and cross-drainage structures, which is operable throughout the year), to the eligible unconnected habitations in the rural areas, in such a way that all unconnected habitations with a population of 1,000 persons and above were to be covered in three years (2000-2003) and all unconnected habitations with a population of 500 persons and above by the end of the Tenth Plan Period (2007). In respect of the hill States (North-East, Sikkim, Himachal Pradesh,

Figure 2.2: Road constructed under PMGSY in Arunachal Pradesh

Jammu & Kashmir, Uttarakhand) and the desert areas (as identified in the Desert Development Programme) as well as the tribal (Schedule V) areas, the objective was to connect habitations with a population of 250 persons and above.

2.19 The original targets set for PMGSY were found to be too ambitious. Subsequently, PMGSY was re-phased to achieve time bound targets for rural connectivity by folding it into the Bharat Nirman programme initiated in 2005-06. It aimed to provide connectivity to all the habitations with a population of more than 1000 in the plain areas and habitation with a population of 500 or more in hilly or tribal areas in a time bound manner by 2009.

Financial and Physical Progress during Annual Plan - 2009-10

2.20 An expenditure of Rs.21,000 crore against an outlay of Rs.18,500 crore (Rs.12,000 crore GBS and Rs.6,500 IEBR), was expected in 2009-10.

2.21 Construction of 48954 km. of roads and connectivity to 4955 habitations was achieved by February 2010, against the year's target of 55,000 kms of roads and connectivity to 13,000 habitations.

2.22 The achievements varied across states. The states falling short in connectivity are Assam, Chhattisgarh, Orissa, Bihar, Jharkhand, West Bengal, Jammu & Kashmir, Tripura and Uttarakhand.

Reasons for Slow Progress

- Shortage of adequate number of dedicated Programme Implementation Units (PIUs) at state level
- Limited contracting capacity of state governments
- Delay in getting forest clearance
- Non-availability of private land for road construction
- Delay in award of contract and weak contract management
- Difficult terrain and inclement weather conditions.

Action Taken / Proposed

2.23 **Strengthening of institutional capacity** Creation of dedicated PIUs, deployment of central PSUs, outsourcing of project preparation, engaging independent project implementation consultants and reviewing the existing delegation of powers are some of the steps taken/being taken by various states in order to strengthen institutional capacity.

2.24 **Augmentation of contracting capacity -** With massive step up in the investment in road construction, constraints in contracting capacity have emerged as a major implementation issue necessitating repeated bidding for awarding contracts in certain cases. Some of the steps taken to enhance the contracting capacities in the states include, increase in the size of the package, permit joint ventures between big and small contractors and award performance incentives for timely completion of projects.

2.25 **Forest and environment clearance -** It usually takes 12-14 months to obtain

forest clearance. States affected have to initiate pro-active upfront action for seeking forest clearances as soon as the survey commences for preparation of Detailed Project Reports (DPRs).

2.26 **Availability of private land for road construction -** State governments are to ensure availability of private land required for road construction. States experiencing difficulties on this account have to use Gram Panchayats and local revenue administration to overcome this constraint.

2.27 **Law & Order problems -** Left wing extremist activities are affecting the pace of implementation in some parts of Bihar, Chhattisgarh, Orissa and Jharkhand. These states have to ensure adequate security to implement the programmes.

2.28 In addition, the Ministry of Rural Development has taken a number of steps to improve the implementation of projects under PMGSY. These include e-procurement aimed at reducing time for processing bids increasing competitiveness and enhancing transparency, rationalisation of standards and stakeholders, review of performance of states which are lagging behind in achieving targets, strengthening maintenance and monitoring.

Programme for 2010-11

2.29 An outlay of Rs.22,000.00 crore (Rs.12,000.00 GBS and Rs.10,000.00 crore IEBR) has been provided to the Ministry of Rural Development for the development of rural roads for the Annual Plan 2010-11. Details of physical targets are: -

- Connectivity to 6,000 habitations
- Construction of 19,090 kms. for new connectivity and
- 15,000 kms. under upgradation

(Physical targets have been fixed only on the basis of GBS of Rs.12,000.00 crore)

Way Forward

2.30 The issues that need to be looked into are:

1. Preparation of work and financing plan.. It may indicate road length to be constructed to achieve the target of PMGSY, requirement of funds and identify the sources of funding.
2. In order to provide adequate funds for the maintenance of existing rural roads, there is need to enhance self-financing capacity of the sector.

CHAPTER-3

PORTS

Introduction

3.1 Ports play a vital role in the overall economic development of the country. There are 12 major ports and about 200 non-major ports along India's coastline. The 12 major ports are located at Kolkata/Haldia, Mumbai, Jawaharlal Nehru Port at Nhava Sheva, Chennai, Cochin, Visakhapatnam, Kandla, Mormugao, Paradip, New Mangalore, Tuticorin and Ennore. The major ports are under the direct administrative control of the Central Government while the non-major ports are under the jurisdiction of the respective maritime State Governments.

Goals, Targets & Achievements during 2009-10

3.2 Ensuring vibrant, efficient and safe ports is the main goal of development of ports. In the past, our ports suffered from capacity constraints. The major thrust in the medium term is to improve capacity by construction of new berths and by improving productivity by replacing old equipment, improving the draft and development of associated infrastructural facilities.

3.3 Traffic at ports had been increasing at a rate of 10-12 per cent in the past.

Figure 3.1: Cochin Port

However, in 2008-09 the growth of traffic at major ports was modest (2.7 per cent). During 2009-10 there was further increase in traffic and major ports handled 560.97 MT, registering an increase of 5.74 per cent over the previous year.

3.4 The Eleventh Plan envisaged an additional capacity generation of 511.80 MT making total capacity of major ports at 1016.55 MT by the end of the Plan period. However, capacity augmentation in the first three years of the Eleventh Plan was not satisfactory. While in the first two years generation of additional capacity was only 70 MT, in 2009-10 it was 25 MT. The Second Container Terminal at Chennai Port which became operational in 2009-10 added a capacity of 9.6 MT.

3.5 The augmentation of port capacity was expected from investment by the private sector. It took some time to firm up the processes and procedures that would facilitate private investment in port sector. The various documents including Model Concession Agreement are now in place. It is expected that private sector participation in ports would pick up giving the necessary boost to capacity augmentation of ports.

3.6 Thirteen Public-Private Partnership projects at an estimated cost of Rs. 2653.41 crore and capacity of 65.65 Million Metric

Table 3.1: Award of PPP Projects in 2009-10

S. No.	Projects	Port	Cost (Rs. in Cr.)	Capacity (MT)
1	Development of 13th multipurpose cargo berth (other than liquid and container cargo berth)	Kandla	188	2.00
2	Construction of Deep Draft Iron Ore Berth	Paradip	591	10.00
3	Construction of Deep Draft Coal Berth.	Paradip	479	10.00
4	Setting up of Mechanised Iron Ore Handling Facilities at Berth No- 14.	New Mangalore	277.11	6.62
5	Development of Berth no- 7 for handling bulk cargo.	Mormugao	252	7.00
6	Development of Western quay(WQ-6) in the northern arm of Inner harbour of VPT for handling Dry bulk cargo	Vizag	114.37	2.00
7	Development of EQ-10 berth in Inner Harbour for handling liquid cargo.	Vizag	55.38	1.85
8	Mechanised Coal handling facilities at General cum Cargo Berth(GCB) in the Outer Harbour	Vizag	444.10	10.18
9	Mechanisation at HDC berth no 2	Kolkata	75	4.00
10	Mechanisation at HDC berth no 8	Kolkata	75	4.00
11	Mechanisation of Cargo Handling Project-1	Paradip	37.32	2.00
12	Mechanisation of Cargo Handling Project-2	Paradip	25.13	2.00
13	Mechanisation of Central Quay-III Berth	Paradip	40.00	4.00
		Total	**2653.41**	**65.65**

Tonnes Per Annum (MTPA) were awarded in 2009-10. The projects are listed in Table-4.1:

3.7 The progress with regard to improvement in productivity has not been satisfactory. The comparison of average turnaround time for the period April to February 2009 and April to February 2010 indicates that there has been an increase in average turnaround time of vessels from 3.88 to 4.42 days. Only four ports viz Chennai, Cochin, Mumbai and Kandla have shown some improvement. Average turnaround time on port account has also shown deterioration from 2.45 to 2.61 during the same period.

3.8 Several projects are under underway at various ports. The International Container Trans-shipment Terminal (ICTT) at Vallarpadam at Cochin Port is one such important project. Significant progress has been made with regard to construction of the Terminal in 2009-10 and the project is expected to be commissioned shortly. Rail connectivity to ICTT at Vallarpadam was taken up at an estimated cost of Rs. 298.17 crore. Construction work of this project has already been completed. The four-lane NH connectivity to ICTT, taken up at an estimated cost of Rs. 871.17 cr., is expected to be commissioned by December 2010. In addition, the implementation of project relating to capital dredging for deepening and widening of the approach channel and berth basin of ICTT to provide draft of 14.5 m at Vallarpadam has been initiated.

Sethusamudram Project

3.9 Following Supreme Court orders, dredging work in Adam's Bridge area has been suspended. The Supreme Court suggested that the alternate alignment between Dhanushkodi and Lands End on Rameshwaram Island may be examined keeping in view the technical aspects, cost

Figure 3.2: Chennai Port

benefit analysis, social and cultural impact, environmental impact assessment (EIA) and law & order and any other related issue. Accordingly, the Central Government constituted a Committee of Experts to consider the re-alignment of Sethusamudram channel. The Committee has nominated the National Institute of Oceanography (NIO) for carrying out the proposed EIA. The NIO has started work on the EIA and installed equipment for collection of data etc.

Tsumani Rehabilitation Programme

3.10 The Tsunami Rehabilitation Programme (TRP) for ports is being implemented by the Andaman & Lakshwadeep Harbour Works (ALHW) for the Central Sector. Under the TRP, besides the commissioning of jetties, restoration of the cargo handling equipments and other allied port structures like passenger hall, cargo godowns, port offices, navigational aids etc at various ports has been carried out for facilitating smooth port operations. Out of a total number of 84 schemes under the TRP, 29 schemes have been completed, 26 are under progress and tenders have been invited for four of schemes. Six of the projects are under revision while 19 have been dropped.

3.11 The pace of work on ALHW picked in 2009-10 and significant progress was made. Four jetties were commissioned during the year. These are now operational and fit for berthing of vessels which has helped resume the shipping activities.

3.12 The expenditure on development of port facilities by ALHW also showed an increase in 2009-10. The organisation has spent about Rs.110.00 crore towards plan works during 2009-10 incurring more than double the expenditure of Rs.54.00 crore during 2008-09.

Targets 2010-11

3.13 In 2010-11, it is proposed to award 21 PPP projects for augmentation of port capacity. These projects mainly relate to construction of additional berths. An aggregate additional capacity to the tune of 168.45 MT would be generated by these projects. The private sector is expected to invest a sum of Rs.13891 crore in 2010-11. The target for dredging for 2010-11 has been set at 52 million cubic metres.

Way Forward

3.14 Several issues have to be looked into with regard to Ports sector.

- There is a need to speed up award of projects relating to capacity augmentation in order to make up for the slow progress witnessed in the past.
- There is a need to firm up dredging plans and improve the productivity through removal of constraints like inadequate infrastructure, absence of seamless connectivity with other modes, etc.
- Institutional and regulatory arrangements need to be reviewed to ensure speedy development of ports.
- The procedure regarding environmental clearances needs to be rationalised.

CHAPTER-4

AIRPORTS

Introduction

4.1 Aviation Sector in India has undergone a sea change in the last five years. The number of passengers at Indian airports increased from 40 million in 2000-01 to 119 million in 2007-08. With a view to create world-class airport infrastructure, upgradation/ modernisation of a number of metro and non-metro airports have been undertaken by Airports Authority of India (AAI) as well as through joint venture companies. In addition, AAI has also initiated a project in consultation with Indian Space Research Organization (ISRO). Known as the Global Positioning System (GPS) aided Geo Augmented Navigation (GAGAN) project. It is a Satellite Based Augmentation System (SBAS) aimed at providing augmented GPS information to aircrafts, making such information more reliable and accurate. The system is expected to improve navigation facility, enabling more efficient Air Traffic Management.

Goals, Programmes, Targets & Achievements 2009-10

4.2 The major objectives of the development of airports are to provide (i) world class infrastructure facilities, (ii) air connectivity to remote and inaccessible areas with special reference to north eastern part of the country.

4.3 Brownfield Airports:

(a) Indira Gandhi International (IGI) Airport, New Delhi: Phase-I of the development project which was undertaken by M/s Delhi International Airport Pvt. Limited (DIAL) in May 2006, was completed in 2009-10 at a cost of about Rs.12,258 crore. The task

Figure 4.1: Indira Gandhi International Airport

of modernisation included construction of Integrated Terminal T-3, runway 11/29, parallel taxiway, rapid exit taxiways, refurbishment, Haj Terminal renovation and expansion of the domestic arrival terminal.

4.4 During the year 2009-10, DIAL completed work on remaining seven Mandatory Capital Projects (MCP) and incurred an expenditure of Rs.3,910 crore as against the target of Rs.3,500 crore for completion of integrated T-3 project with road connectivity, utility support, Apron, parking, etc.

(b) Chhatrapati Shivaji International (CSI) Airport, Mumbai: The Mumbai International Airport Pvt. Ltd. (MIAL) has undertaken the development of the airport at an estimated cost of Rs.9,802 crore MIAL started its work after taking over the airport in May 2006. The projected date of completion of this project is 31 December 2012. Up to March 2010, an expenditure of Rs.3,416 crore has been incurred on various works related to the project.

4.5 The new domestic terminal T1C was commissioned in 2009-10. The project was completed at a cost of Rs.1,306 crore. This new terminal is a link between the existing terminal 1A and 1B with a facility of six boarding bridges. With opening of this terminal, passengers hitherto served by terminal 1A and 1B, will get an additional terminal at their service. The expansion of the existing infrastructure will (a) enhance space and seating capacity and thus be more comfortable for passengers, (b) widen security hold-up area, (c) introduce operation and convenience of airlines, etc. Substantial works on structural concreting for the South-West pier, upgradation of runways, erection of the mega columns in the integrated processor terminal, Apron, taxiway, terminal T2 project, etc. were undertaken and completed.

Greenfield Airports

(a) Hyderabad: The development of the new airport at Shamsabad was undertaken by M/s Hyderabad International Airport Limited (HIAL) in October 2005 and completed in March 2008 at a cost of Rs.2,202 crore. The new airport has been in operation since then. During the year 2009-10, HIAL spent Rs.84.87 crore on setting up a special handling terminal for Haj pilgrims, passenger transport centre, additional cargo facility and administrative and other offices.

(b) Bangaluru: Work relating to setting up of a new airport at Devanhalli, Bangalore was undertaken by M/s Bangalore International Airport Limited (BIAL) in the year 2005 and completed in May 2008. In 2009-10, BIAL undertook various development works such as paving of additional GSE (Ground Support Equipment), establishing ICT- public address systems, and finalised design and engineering for expansion of Terminal and Apron as well as the construction of Pass Office, etc at a cost of Rs.19.84 crore.

(c) Pakyong Airport: Construction of a Greenfield airport at Pakyong (Sikkim) has been undertaken by AAI at a project cost of Rs.309.26 crore. The work was started in January 2009. In 2009-10, an expenditure of Rs.37.37 crore was incurred

on development works. By March-end 2010 a cumulative expenditure of Rs.42.37 crore was incurred.

(d) Other Greenfield Airports: So far, 'in principle' approval has been accorded for new airports at Navi Mumbai & Sindhudurg in Maharashtra, Mopa in Goa, Kannur in Kerala, Gulbarga, Hassan, Simoga & Bijapur in Karnataka, Durgapur in West Bengal, Palladi near Jaipur in Rajasthan and Kushinagar in Uttar Pradesh. 'In-principle' approval has also been accorded for Cargo airport at Dabra in Madhya Pradesh.

Development of infrastructure facilities at metro and non-metro airports by AAI

Development and modernisation of metro airports with AAI

4.6 Airports Authority of India has taken up modernisation and expansion of the international airports at Kolkata and Chennai at an estimated cost of Rs. 1942.51 crore and Rs. 1808.25 crore respectively.Physical and financial progress of modernization works at Kolkata and Chennai airports during 2009-2010 is given in the following paras:

(a) Development work of Chennai Airport: The development programme undertaken for Chennai airport has three components:

Domestic Terminal Phase-II and expansion of Anna International Terminal:

4.7 This project is estimated to cost Rs 1,212 crore and is expected to be completed by January 2011. In 2009-10, a sum of Rs.258 crore was spent taking the cumulative expenditure to Rs.350 crore. Forty three per cent of the work on the project has been completed so far. When commissioned, the international terminal would enhance capacity from 3 to 7 million passengers. The new domestic terminal will have a capacity of 10 million passengers against 6 million capacity of existing terminal.

4.8 Construction of Reinforced Cement Concrete (RCC) pre-stressed bridge across Adyar river has been awarded at a cost of Rs.186 crore. Expenditure amounting to Rs.56 crore has been incurred and up to March 2010, 38 per cent of physical progress has been achieved. The project is expected to be completed by November 2010. The delay has been due to the extended rainy season and delay in closure of the secondary runway 12-30 for execution of these works.

4.9 Work on expansion of secondary runway and taxi track along with related works estimated to cost Rs. 210 crore was nearing completion in 2009-10. The Projected Date of Completion (PDC) was April 2010 but this was revised to July 2010 due to extended rainy season and delay in closure of secondary runway 12-30. An amount of Rs.159 crore was spent and 75 per cent progress achieved at site, as on March 2010.

(b) Development work of Kolkata Airport: Work on Integrated Passenger Terminal and expansion of secondary runway and related works is in progress. The project is estimated to cost Rs. 1,942.51 crore. An expenditure of Rs.620.22 crore has been incurred so far, including a sum of Rs.386 crore spent in 2009-10.

4.10 The expansion of runway and other related works are being undertaken at a cost of 95.25 crore. Though the project was expected to be completed by September, 2009, the date was revised to June 2010 due to delay in diverting a road and removing encroachments. However, 90 per cent of the work has been completed at site so far.

Development and modernisation of 35 non-metro airports

(a) Out of 35 Non-Metro airports, development and modernisation work in 12 airports namely: Vizag, Mangalore, Trivandrum, Aurangabad, Nagpur, Amritsar, Jaipur, Udaipur, Agartala, Trichy, Agra and Dehradun were completed in 2009-10 at a total expenditure of Rs. 1,558.49 crore. These development works have enhanced the capacity of terminal buildings, parking bays for aircrafts and extension of runway length for higher category of aircraft operations.

(b) Of the remaining 23 airports, it is expected that the ongoing works at 14 airports namely: Raipur, Ahmedabad, Ranchi, Bhopal, Indore, Khajuraho, Pune, Imphal, Dimapur, Coimbatore, Madurai, Lucknow, Varanasi and Chandigrah will be completed by 2010-11. Delay in completion of some of these projects have been due to non-availability of land/ shifting of services like road etc by State Govt/ Defence, slow progress by agencies & consultant. To improve the progress, works are being regularly monitored by dedicated project teams. Besides, an independent department *i.e.* Project Monitoring and

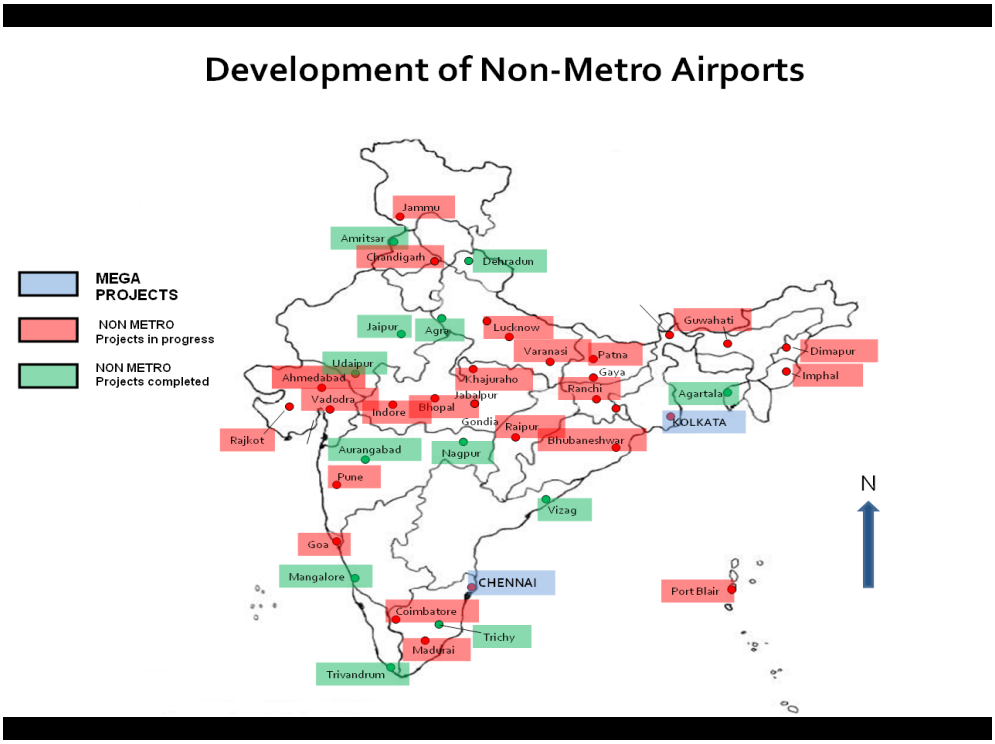

Figure 4.2

Quality Assurance (PMQA) department has been set up at Corporate Headquarters reporting to the Chairman of AAI to ensure regular monitoring and quality assurance at site through periodic site visits and holding review and coordination meetings to remove hindrances and expedite progress without any cost escalation.

(c) Works on five airports *viz.* Port Blair, Goa, Bhubaneswar, Jammu and Vadodara for which detailed planning & engineering have already been taken up by AAI, are likely to be awarded during financial year 2010-11 and completed by 2012-13.Development of new terminal building at Patna, Guwahati, Rajkot, Agatti airports has been kept in abeyance due to non availability of adequate land.

Establishment of Airports Economic Regulatory Authority (AERA)

4.11 The Airports Economic Regulatory Authority of India Act, 2008 has been enacted to establish Airports Economic Regulatory Authority (AERA) to regulate tariff and other charges for the aeronautical services rendered at major airports and to monitor performance standards of such airports. Following its establishment, the Authority had issued a 'White Paper' in December 2009, listing out major issues impacting its regulatory philosophy, objectives, principles, systems and procedures. The stakeholders were also made part of the consultation process and comments/ submissions were received from the stake holders on the 'White Paper'. Besides, the Authority also considered the statutory procedures, contractual requirements, international practices, etc. Based on the inputs received from the stakeholders and other sources, AERA has prepared a 'Consultation Paper' listing out the major issues, the Authority's proposed position/ approach and the rationale thereof.

Implementation of GAGAN

4.12 India's satellite based navigation system, the GPS Aided Geo Augmented Navigation (GAGAN) is being developed indigenously at a cost of Rs. 774 crore and expected to be operationalised by June 2013.

4.13 Once commissioned, it will provide route navigation services over Indian FIR including oceanic areas and approach guidance over entire territorial mass of India. The footprints of GAGAN fall outside Indian boundaries and extend from South Africa to Australia. India will be one of four countries (other countries being USA, Japan and European Union) in the world to have developed this modern and upcoming technology for aircraft navigation. This technology immensely benefits the civil aviation sector by providing navigational and landing guidance to aircrafts at airports situated in difficult terrain and at airports where it is uneconomical to install terrestrial navigational aids, more efficient upper space management and more direct route, thereby reducing flying costs, time and stress to pilots and air traffic controllers.

4.14 GAGAN will also be useful in providing navigational guidance to ships, road transport, trains, mobile users, in search & rescue operations, in flood control,

scientific research, and precision farming, etc.

Projects related to CNS

4.15 Creation of adequate and sufficient Communication, Navigation & Surveillance (CNS) infrastructure is a must for safe and efficient aircraft operations in all phases of flight. While cruising, aircrafts need to know the position as well as the direction it is flying in. For landing at the destination, it needs to follow procedures based on the CNS infrastructure provided at the place of landing.

Projects completed in 2009-10:

I. Communication

a) VHF (Very High Frequency) Transmitters & Receivers – to augment and upgrade the communication facilities of air to ground communication, 250 VHF Tx / Rx have been installed at various airports.

b) DSCN (Dedicated Satellite Communication Network) – To facilitate voice and data communication between airports, DSCN has been operationalised at 58 airports.

c) RCAG (Remote Control Air to Ground) – To augment en-route VHF coverage in terrestrial air space over India, RCAG facility has been provided at nine airports.

II. Navigation

a) ILS (Instrument Landing System) - To provide landing guidance to the aircrafts, ILS has been installed at seven airports.

b) DVOR/DME (Dopler VHF Omni Range / Distance Measuring Equipment) – To provide radial information to the aircrafts, DVOR/DME has been provided at five airports.

III. Automation System

Automation system at IGI airport has been augmented to handle third Runway operations.

IV. Passenger Terminal Facilities

FIDS (Flight Information and Display System) – for imparting flight related information to the passengers/ public, FIDS has been provided at ten airports

4.16 **The airport infrastructure development works to be undertaken during 2010-11**

(a) IGI Airport, New Delhi: M/s Delhi International Airport Pvt. Ltd. (DIAL) has proposed to develop infrastructure relating to shifting of ATC tower at a cost of Rs.350 crore and rehabilitation of runway 28 x 10 at a cost of Rs.110 crore. The work on rehabilitation of runway would be completed during 2010-11

(b) **CSI Airport, Mumbai:** M/s Mumbai International Airport Pvt. Ltd. (MIAL) has proposed to undertake infrastructure development work relating to new passenger terminal including completion of South-West Pier works, realignment of Taxiway B1 to Code F and Apron T2 upgradation and realignment of RWY/09/27 and re-allocation of various facilities etc. at a cost of Rs 2280 crore,

(c) **RGI Airport, Hyderabad:** M/s Hyderabad

International Airport Pvt. Ltd. (HIAL) has proposed to undertake infrastructure development work such as installing Compost Plant with an total outlay of Rs.0.40 crore

(d) **Bangaluru International Airport:** M/s Bangalore International Airport Ltd. have planned infrastructure development with an estimated cost of Rs.192.71 crore. The major item of works include: Passenger terminal expansion and Apron expansion on the western side. Besides widening of a portion of main access road between two roundabouts, providing taxiway shoulders and ICT-additional computers, software, WIFI on the landside and airside, IP phones etc.

(e) **Pakyong Airport:** For the year 2010-11. a budget of Rs.80.00 crore has been provided to undertake work relating to excavation, flexible geo grid, reinforce soil work, reinforcement cement concrete and miscellaneous work for centering and other works.

(f) **Development of infrastructure facilities at metro and non-metro airports:** During the year 2010-11, an expenditure of Rs.620 crore is envisaged to be incurred with 77 per cent physical progress at site in respect of modernization of Kolkata airport. Similarly, a budget provision of Rs.663.16 crore has been envisaged with 100 per cent targets for development of Chennai airport.

(g) In the remaining 23 Non Metro airports where works are in progress it is expected that the ongoing works at 14 airports namely: Raipur, Ahmedabad, Ranchi, Bhopal, Indore, Khajuraho, Pune, Imphal, Dimapur, Coimbatore, Madurai, Lucknow, Varanasi and Chandigrah will be completed by 2010-11.

(h) **CNS**

A sum of Rs.223 crore is provided to strengthen communication, navigation and surveillance by installing equipment which includes 115 bhf, ILS at 15 airports. Seven new radars for seamless radar coverage for en route control over Indian air space are to be provided. To reduce the human error and stress on the air traffic controller, sufficient level of automation is required to be provided on the air traffic electronic equipage used by them. With this purpose, Tower ATS Automation will be provided at 38 airports having medium to heavy air traffic.

Airports Economic Regulatory Authority (AERA)

4.17 During the period 2010-11, the Authority would finalise its action points on the 'Consultation Paper' on the issues impacting its regulatory philosophy, principles and issues which would facilitate the Authority to carry out its regulatory functions as enshrined in the AERA Act, 2008.

Way Forward

4.18 The following issues require to be resolved to enable speeding up of work undertaken under airport development programmes in the coming years:

(a) The process of restructuring of Airport Authority of India needs to be expedited.

(b) The augmentation of infrastructure

facilities in North Eastern Region as envisaged in the Eleventh Plan needs to be given priority.

(c) The process of segregating Air Traffic Control from Airport Authority of India needs to be expedited.

CHAPTER-5

POWER & NEW AND RENEWABLE ENERGY

Introduction

5.1. Power sector has received utmost priority in the successive Five-Year Plans resulting in utility-based installed generation capacity rising from 1362 Mega Watt (MW) at the time of independence to about 1,60,000 MW today. Along with the growth in installed generation capacity, there has also been a phenomenal increase in the transmission and distribution (T&D) capacity. Although much has been achieved, shortage of power and lack of access continues to be a major constraint on the economic growth. The enactment of the Electricity Act in June 2003 was a major milestone which paved the way for development of the power sector within a competitive and liberal framework while protecting the interests of the consumers as well as creating an environment that was conducive for attracting investments in the sector. Subsequently, National Electricity Policy and National Tariff Policy were also formulated to give direction to the power sector within the ambit of the Electricity Act. The Regulatory framework has been established and has been in operation for five to ten years. However, both competition and a robust regulatory regime that supports such competition are still to be realised.

Targets and Achievements during 2009-10

5.2. The targets & achievements in respect of capacity addition, energy generation, transmission lines, and village electrification in 2009-10 are given at Table 5.1.

Table 5.1: Targets & Achievements

Particulars	2009-10
Capacity addition (MW)	**Target - 14507** Actual - 9585
Energy generation (BU)	**Target - 789.51** Actual - 771.17
Transmission Lines (ckt. Kms.)	**Target - 17563** Actual – 13721
RGGVY i) Village electrification (Nos) ii) BPL H/Holds (in Lakhs)	 **Target - 17500** Actual - 18374 **Target - 47.00** Actual - 47.18

Targets for 2010-11

5.3. The targets in respect of capacity addition, energy generation, transmission lines, and village electrification in 2010-11 are shown in Table 5.2.

Table 5.2: Targets for Annual Plan 2010-11

Particulars	2010-11
Capacity addition (MW)	Target - 20359
Energy generation (BU)	Target – 830.77 BU
Transmission Lines (ckt. kms.)	Target - 18563
RGGVY i) Village electrification (Nos) ii) BPL H/Holds (in lakhs)	 Target –17500 Target – 47.00

Capacity Addition

5.4. A net 9585.00 MW was added to the generating capacity during the Annual Plan 2009-2010 which was about 66.1 per cent of the target of 14,507.00 MW. The Table 5.3 summarises below the capacity additions realised during 2009-10.

Table 5.3: Addition in Capacity (MW)

Mode-wise	2008-2009 Actual	2009-2010	
		Target	Achieve-ment
Hydro	969.00	845.00	39.00
Thermal	2484.70	13002.00	9106.00
Nuclear	0.00	660.00	440.00
Total	**3453.70**	**14507.00**	**9585.00**

Reasons for shortfall in capacity addition during 2009-10

5.5. Some of the factors that contributed to shortfall/delay in commissioning of projects were:

- Delay and non-sequential supply of material for Main Plant and Balance of Plants (BoP)
- Shortage of skilled manpower for erection and commissioning
- Contractual dispute between project developer and contractor and their sub-vendors/sub-contractors
- Inadequate deployment of construction machinery
- Shortage of fuel
- Problem of land acquisition
- Delay in erection of infrastructure facilities like reliable construction power supply & roads at project sites etc.

Capacity addition during 2010-11

5.6. A capacity addition target of 20,359 MW comprising 17793 MW thermal, 1346 MW hydro and 1220 MW nuclear has been proposed for 2010-11.

Generation

5.7. The total generation envisaged for 2009-10 was 789.51 Billion Unit (BU), about 1.96 per cent higher than the target for the preceding year 2008-09. The generation programme for 2009-10 included 6.56 BU from the Chukha, Kurichu, and Tala Hydel Projects in Bhutan. The source-wise generation targets and achievements for 2009-10 are summarised in Table 5.4.

Table 5.4: Source-wise Electricity Generation

(Million Units)

Parti-culars	2008-09 Actual	2009-10	
		Target	Achievement
Hydro	113081	115468	106656 (92.37%)
Thermal *(Coal)*	590101 *(489113)*	648480 *(525130)*	640523 (98.77%) *(514496) (97.98%)*
Nuclear	14713	19000	18654 (98.18%)
Import from Bhutan	5899	6564	5341 (81.37%)
Total	**723794**	**789512**	**771173 (97.68%)**

5.8. As can be seen from Table 6.4, there was shortfall in the case of hydro generation due to scanty rainfall and the marginal shortfall of 1.23 per cent in thermal generation, which was compensated by increased generation from gas based projects.

Details of Coal Import for Power Sector (Utilities)

5.9. The position of coal import during the Eleventh Plan period is given in Table 5.5.

Table 5.5: Details of Coal Import for Power Sector

Year	Import (Million Tonne)
2007-08 (actual)	10.2
2008-09 (actual)	16.1
2009-10 (actual)	23.2
2010-11 (Target)	47.0*

*includes 12 MT for designed for imported coal.

Monitoring mechanism for supply of coal to power stations on daily basis

5.10. The coal supply position to thermal power stations is monitored by the Central Electricity Authority (CEA) on a daily basis.

Generation Target during 2010-11

5.11. MoP has proposed a generation target of 8,30,769 Million Units (MU) which is 5.26 per cent higher over the 2009-10 (Target) and 7.73 per cent higher over actual generation of 2009-10.

Coal and gas requirement for power sector

5.12 Out of the total installed power generation capacity of 1,59,400 MW, in the country 84,198 MW was coal / lignite based, that is 53 per cent of the total capacity, as on 31March 2010. Out of total generated power, around 67 per cent comes from coal fired power stations. Due to shortage of coal, there has been loss of generation ranging from 1.6 BU in 2005-06 to about 11 BU in 2009-10. , On the other hand, the overall Plant Load Factor (PLF) of Thermal power stations in the country has improved over the years. Out of 78 thermal power stations, 35 thermal power stations achieved PLF higher than 90 per cent (out of these 11 power stations achieved more than 100 per cent PLF).

5.13. To ensure coal and gas availability, following steps have been initiated:

- Setting up of coal washeries for reducing burden on railways and to improve efficiency of power stations
- Development of adequate port, railways and roads infrastructure for transportation of coal to power projects
- Development of specialised port/ jetties well-equipped with coal handling infrastructure
- Development of Dedicated Freight Corridor
- Expeditious development of coal blocks: Development of coal blocks by Coal India Limited (CIL) in Public Private Partnership (PPP) mode through price-based bidding is suggested
- Intensification of exploration and production activities for gas and coal
- Setting-up of Liquefied Natural Gas (LNG) terminals

New Initiatives

Ultra Mega Power Projects

5.14. A major initiative in addition to power generation capacity is the programme of Ultra Mega Power Projects (UMPPs). So far, four UMPPs of 4000 MW each have

been awarded on the basis of competitive tariff-based bidding. Out of these, five units of 800 MW each are under construction at Mundra UMPP. Order for another UMPP at Sasan (6x660 MW) has been placed. Orders for Boiler & T.G. sets for other two UMPPs (Krishnapatnam & Tilaya) are yet to be placed. Five more super critical UMPPs have been planned and concerted efforts are required for these capacities to come up in the Twelfth Plan. An important element of this programme is that super critical technology has been stipulated thus initiating and building on the important shift to energy efficiency.

Emergence of Natural Gas as preferred fuel

5.15. Due to its inherent benign nature, easy transportability, ease of use, greater efficiency and cost effectiveness of power plants, natural gas has emerged as the preferred fuel for power generation. The last two decades have seen a sharp rise in the global demand for natural gas. However, the supply of natural gas in the power sector has not kept pace with demand. Empowered Group of Minister (EGOM) has allocated 30 Million Metric Standard Cubic Metre per Day (MMSCMD) additional gas supplies to power projects besides the existing allocation of domestic gas. With this, currently allocation of gas to the power sector comes to around 65 MMSCMD. This has facilitated increase in electricity generation from the gas based power plants considerably. Supply of gas from LNG terminal is currently around 36 MMSCMD and is likely to increase to 70 MMSCMD by the end of Eleventh Plan. Availability of gas from the domestic resources as well as from LNG terminals set up in the country would be adequate to meet the needs of the existing capacity and the capacity addition in the Eleventh Plan.

Transmission System Development

5.16. Actual progress for 2009-10 and programme for 2010-11 are given in Table 5.6.

Table 5.6: Progress of Transmission System

	2009-10 Programme	2009-10 Actuals	Prog. 2010-11 (Tentative)
Transmission Lines			
500 kV HVDC	280 ckm	280 ckm	NIL
765 kV	632 ckm	445 ckm	NIL
400 kV	9548 ckm	7857 ckm	12515 ckm
220 kV	7103 ckm	5139 ckm	6048 ckm
Sub-Station			
500 kV HVDC	2500	NIL	1250 MW
765 kV	NIL	NIL	NIL
400 kV	13860 MVA	5225 MVA	15960 MVA
220 kV	14260 MVA	11735 MVA	11776 MVA

Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY)

5.17. The rural electrification under Bharat Nirman is being implemented through Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY). The target under Bharat Nirman was to cover 1,25,000 unelectrified villages out of which 25,000 were to be covered by Ministry of New and Renewable Energy through non-conventional sources. RGGVY was launched in March 2005 with the goal to provide access to electricity to all households, electrification of about 1.15 lakh un-electrified villages and electricity connections to 2.34 crore Below Poverty Line (BPL) households by 2009. RGGVY was approved for continuation in the Eleventh Plan. The scheme provides 90 per cent capital subsidy for the projects.

Status of electrification

5.18 All states participating in RGGVY have notified their rural electrification plan and notified formation of District Committees. The target set for 2009-10 was to electrify 17,500 un-electrified villages against which 18,374 villages were electrified during the year. Year-wise RGGVY targets and achievements of electrification of un-electrified villages and release of connections to BPL households are given in Table 5.7.

5.19 While the progress under village electrification is about 81 per cent and is picking up, the progress under BPL household coverage is far below the target. For the Annual Plan 2010-11, a target of 17,500 of village electrification and 47 lakh BPL Households has been kept.

Restructured- Accelerated Power Development and Reforms Programme (R-APDRP)

5.20. The focus of the R-APDRP programme is on actual demonstrable performance in terms of AT&C loss reduction. Projects under the scheme are to be taken up in two parts. Part-A is the projects for establishment of baseline data and IT applications for energy accounting / auditing & IT based consumer service centres and Part-B is regular distribution strengthening projects. To facilitate the state utilities for expediting the implementation of R-APDRP, MoP has

Table 5.7: Progress of RGGVY

Year	Un-Electrified Villages (No.)			BPL Households (lakh)		
10th Plan	**Target**	**Achmt**	**% Achmt**	**Target**	**Achmt**	**% Achmt**
2005-06	10,000	9,819	98.2%	3	0.17	5.7%
2006-07	40,000	28,706	71.8%	40	6.55	16.4%
Total	50,000	38,525	77.1%	43	6.72	15.6%
Eleventh Plan						
2007-08	10,500	9,301	88.6%	40	16.21	40.5%
2008-09	19,000	12,056	63.5%	50	30.85	61.7%
2009-10	17,500	18,374	104.9%	47	47.18	100.3%
Cumulative (31.3.2010)	**97,000**	**78,256**	**80.7%**	**180**	**100.97**	**56.1%**

finalised the model Detailed Project Reports (DPRs), empanelled IT consultants, IT implementing agencies, Supervisory Control and Data Acquisition (SCADA) / Document Management System (DMS) consultants and SCADA / DMS implementing agencies, finalised the model Request of Proposal (RfP) for appointment of above consultants and agencies. Year-wise progress achieved on R-APDRP is given in Table 5.8.

5.21 Way Forward

Generation

- It is clear that achieving a quantum jump in capacity addition is going to be a major challenge. Presently, the monitoring is done at the level of Central Electricity Authority (CEA). The Power Project Monitoring Panel (PPMP) with the Ministry of Power is being used for periodic zone-wise review of the programme for quick removal of bottlenecks.
- It has been recommended that the web-based MIS used by NTPC for its Dadri Plant should be used for monitoring project implementation programme of all new plants.
- Indigenous manufacturing capacity for super critical unit suppliers, both in public and private sectors is being incentivized.
- Policy measures need to be initiated to encourage setting up of open cycle gas based plants for meeting peak demand. Differentiated tariff for peak and off-peak supply will encourage the investors to build such plants.

Transmission:

- Establishment of gas-insulated sub-stations should be promoted to bring down the pressure on land acquisition.
- Transmission of power requirements should be reassessed in view of open access requirements.
- Private investments in transmission projects should be actively promoted.

Distribution:

- The distribution sector requires a robust and reliable MIS to overcome existing information and capability deficiencies. Distribution utilities that have been proactive in measurability, accountability and governance have performed significantly better than others in finance and operation.
- The distribution sector requires substantial improvements in business planning and forecasting to manage its finances and operations better. This would require

Table 5.8:Financial progress on R-APDRP

(Rs. in Crore)

Year	Projects sanctioned	BE	RE	Actual Releases		
				Loan	Grant	Total
2008-09	1,947.70	---	350.00	325.00	25.00	350.00
2009-10	6,063.49	1730.00	1430.00	1331.46	12.60	1344.06
TOTAL	8,011.19			1656.46	37.60	1694.06

facilitating Multi Year Tariff (MYT) frameworks, as mandated by the Electricity Act, 2003 in the States.

- It also needs to enhance power procurement and portfolio optimisation skills. Much of the present cost problems are on account of poor power procurement, planning and contract management
- Improvement of network forecasting, planning and execution skills on an accelerated pace is required. Networks need to be strengthened to ensure that power distribution capabilities are adequate and efficient. Studies demonstrate that the present levels of technical losses in the networks are unacceptably high in some of the large states.
- Customer service and management methods need to be improved substantially for greater consumer satisfaction and overall reduction in service costs. This would also facilitate in implementing cost reflective tariffs and timely payments from consumers.
- Adequate emphasis needs to be placed on quality and monitoring of the Restructured APDRP programme interventions and outputs.
- There should be greater focus on the rights of the customer. There are documented cases of the distribution utilities switching off supplies to their own customers to sell power at profit in the short-term power market sales. Supply obligations should be enforced and utilities should not be allowed the discretion of cutting off customers to sell in the power market.

NEW AND RENEWABLE ENERGY

5.22. The estimated medium-term (up to 2032) potential for renewable energy in the country from wind, small hydro, solar and biomass has been assessed at 88,000 MW, which includes the potential from wind (48,500MW), small hydro (upto 25 MW station capacity) (14,000MW), biomass (crop residues & bagasse) (21,500MW), and urban & industrial wastes (3,800MW). In addition, there is the theoretical potential of solar power generation of 600,000 MW.

5.23. India is among the top rankers in the installation of grid interactive renewable power plants. A cumulative grid-interactive power generation installed capacity of around 16,817MW from various renewable energy sources mainly wind, small hydro, biomass and solar energy has already been set up. This corresponds to over 9 per cent of the total power generation installed capacity from all sources in the country.

5.24. Constraints in exploration of renewable energy sources:

- Inherent intermittent nature of renewable energy sources leading to low capacity utilisation factors ranging from about 17 per cent to 70 per cent, depending on resource and location;
- Grid synchronisation limitations on account of intermittent nature of supply;
- Relatively higher capital investment compared to conventional power projects; and

- Requirement of preferential tariffs apart from other fiscal and/or financial concessions to make investment in renewable power a commercially attractive proposition

Policy /incentives framework

5.25. The implementation of the wind, small hydro, solar and biomass programmes for power generation from renewable energy sources is being promoted mainly with private investment, backed by various fiscal and financial incentives that include capital/ interest subsidy, accelerated depreciation and nil/ concessional excise and customs duties. Under the Electricity Act 2003, it has been made obligatory upon State Electricity Regulatory Authorities to fix a minimum percentage for purchase of electricity from renewable sources taking into account local factors. Several states have announced such renewable energy purchase obligations. Preferential tariff for grid interactive renewable power is being given in most potential states following the provisions made under the National Electricity Policy (NEP) and National Tariff Policy – 2006. Normative guidelines by Central Electricity Regulatory Commission (CERC) for fixing preferential tariffs have also been issued recently. State Electricity Regulatory Commissions (SERCs) in 17 states have announced preferential tariff for purchase of power.

5.26. In case of Solar power projects, it is envisaged that NTPC Vidyut Vyapar Nigam Ltd. (NVVN), a wholly owned subsidiary company of NTPC, engaged in the business of trading of power will be designated as the nodal agency by the MoP for entering into a Power Purchase Agreement (PPA) with Solar Power Developers. The PPAs shall be signed with the developers setting up solar projects within next three years (i.e. upto March 2013) and are connected to the grid at 33 KV level and above. The PPAs will be valid for a period of 25 years. For each MW of solar power installed capacity for which PPA is signed by NVVN, MoP shall allocate to NVVN an equivalent amount of MW capacity from the unallocated quota of NTPC stations. NVVN will bundle this power and sell this bundled power at a rate fixed as per CERC regulations. In case of significant price movement in the market rate, the Government will review the situation. When NVVN supplies the bundled power to distribution utilities, those distribution utilities will be entitled to use part of the bundled power to meet their Renewable Purchase Obligation (RPO), as determined by the regulatory authorities.

Progress

Wind Power

5.27. A plan target of generating 2500 MW through wind energy was fixed for the Annual Plan 2009-10 against which 1565 MW was achieved. The cumulative achievement during the first three years of the Eleventh Plan is 4714 MW. The target set for the Annual Plan 2010-11 for wind power is 2000 MW.

Small Hydro Power

5.28. So far 709 small hydropower projects (SHP) aggregating to 2,595 MW have been set up in various parts of the country, of which 201 SHP projects with an aggregate

capacity of 1041 MW have been set up by the private sector. In addition, 296 projects of about 936 MW are in various stages of implementation. Against the target fixed for Annual Plan 2009-10 of 300 MW, the achievement has been 305.27 MW. For the Annual Plan 2010-11, a target of 300 MW has been set.

Solar Power

5.29. Four solar photovoltaic power generation plants with an aggregate capacity of 6 MW have been installed during the Annual Plan 2009-10Another five plants of 2.2 MW capacities have been sanctioned and are likely to be commissioned in 2010-11.

CHAPTER-6

TELECOMMUNICATION AND INFORMATION TECHNOLOGY

Department of Telecommunication

Introduction

6.1 World-class information and communication infrastructure is a crucial element in the rapid economic and social development of a country. The telecom industry in India, led by the private sector has seen rapid expansion making its vast network second only to China. The industry is now poised to take a further leap towards better technology and service delivery. The introduction of Third Generation (3G) telecom services is expected to open new frontiers in high speed data communications and Mobile Number Portability which is likely to be rolled out soon will make the market more competitive. Internet users will be able to download information in bulk quantity in a short time. Besides, the developments will lead to generation of better revenue.

Figure 6.1 ***Affordability and reach of mobile phones in India***

6.2 Indian telecom industry manufactures the complete range of telecom equipment but is unable to meet the growing demand. The industry relies much on imported telecom equipment. Nevertheless, expansion of the industry provides excellent opportunities for the domestic and foreign investors to come into the manufacturing sector.

Achievements during 2009-10

6.3 Nearly 14 to 18 million new connections are added each month. By September 2009, the industry had already achieved the Annual Plan 2009-10 target of 500 million connections. The present tele-density is more than 53 per cent with 621.25 million connections (as on April 2010), which has been propelled by wireless subscribers growing at a compound annual growth rate (CAGR) of 60 per cent per annum since 2004. Provision of Village Public Telephones (VPTs) to cover the not-covered villages has been undertaken under the Universal Service Obligatory Fund (USOF).

6.4 The performance of the public sector undertakings (PSUs) in the telecom industry during 2009-10 is as follows:

- *Bharat Sanchar Nigam Limited (BSNL):* As on March 2010, BSNL has provided 157.90 lakh telephone connections against a target of 165 lakh, 21.48 lakh broadband connections (as on 28 Feb 2010) against a target of 25 lakh and 30,698 Route Kilometer (RKm) (as on 28Feb 2010) of Optical Fibre Cable (OFC) laying against a target of 25,500 RKm.
- *Mahanagar Telephone Nigam Limited (MTNL):* As on March 2010, the number of new connections including Wireless Local Loop (WLL) and Cellular stands at 5.35 lakh against the target of 10 lakh. The Switching capacity including WLL & Global System for Mobile (GSM) stands at 6.69 lakh (as on 28 Feb 2010) against a target of 10 lakh. Deployment of Digital Subscriber Line Access Multiplexer (DSLAM)/ Fibre-To-The Home (FTTH) Ports is 2.29 lakh (as on 28 Feb 2010) against a target of 5 lakh ports; Laying of OFC 41,857.81 RKm (as on 28Feb 2010) against target of 1,20,000 RKm.

6.5 Both these PSUs face stiff competition from the private sector. Their late entry into the wireless services has also contributed to their smaller market share. As compensation, the government has permitted the PSUs to provide 3G services ahead of the spectrum auction. This initiative is expected to help improve the market share of these PSUs.

6.6 Centre for Development of Telematics (C-DoT), an R&D establishment under Department of Telecommunications (DoT) has undertaken major projects in 2009-10 in addition to its regular R&D work. These include the Centralised Monitoring System (CMS) related to security management for law enforcement agencies and Asynchronous Transfer Mode (ATM) technology deployment in the Indian Navy.

6.7 Six additional monitoring stations at Bhubneshwar, Dehradun, Lucknow, Patna, Raipur and Vijayawada were set up during 2009-10 by the Wireless Monitoring Organization.

6.8 Vacation of spectrum and its release by the defence services has been taken up on priority by the government. This has been done by providing alternate communication network based on Optical Fibre Cable (OFC). Installation works of OFC and other infrastructure for all the sites of Air Force have been undertaken and are expected to be completed soon.

6.9 The Annual Plan 2009-10 set a target for 40 million Internet and 20 million broadband subscribers. Although broadband subscribers grew from a meagre 0.18 million in March 2005 to about 8.77 million, in February 2010, it was still short of the year's target. Presently broadband connections are available in 4,044 cities, 5,431 block headquarters and 613 district headquarters including 1,37,321 villages. Nevertheless, broadband connectivity is likely to get a boost with the auctioning of spectrum for Broadband Wireless Access (BWA) Service and setting up of Common Service Centres (CSCs) under the National e-Governance Plan (NeGP).

6.10 Undersea cabling between the mainland and Andaman & Nicobar Island

at a cost of Rs.522 crore was approved during the year. The project is expected to be completed in 30 months.

Targets for 2010-11:

6.11 *BSNL:*

- 188 lakh telephone connections
- 35 lakh broadband connections
- Trunk Automatic Exchange (TAX) 2100K circuits
- OFC of 30,000 RKm.

6.12 *MTNL:*

- 10 lakh New connections including WLL & Cellular
- 10 lakh Switching capacity including WLL & GSM
- TAX 64 K
- Broadband 500 K ports
- Laying of OFC120K RKm

6.13 Undersea cabling project between the mainland and Andaman and Nicobar Islands, and OFC based Alternate Network for Defence Services will be implemented.

Policy issues

6.14 In order to achieve the objectives of the telecom sector, proper and conducive policy initiatives need to be introduced by the Government for the expansion of rural telecom network and expansion of broadband and Internet services, manufacturing of telecom equipment and research and development in telecommunications. A few of the policy initiatives taken up by the Department are given below:

- Re-framing of the RF spectrum keeping in view the needs of various stakeholders.
- Policy for bringing in latest technologies (like 3G to 4G etc.) in a seamless manner.
- Sharing of infrastructure by the service providers and incentivizing such sharing to bring down the overall costs of operation.

Way Ahead

6.15 For rapid rural network expansion and broadband penetration, private domestic investment as well as Foreign Direct Investment (FDI) will be encouraged.

6.16 The strengthening of domestic telecom manufacturing sector is required for the high telecom growth in the country. Currently, majority of the demand for telecom equipment is met through imports. Nevertheless, the National Telecom Policy encourages setting up of manufacturing hubs in India. This calls for better investment in this area.

6.17 Though urban tele-density has crossed 119 per cent mark, rural tele-density remained at 24 per cent at the end of March, 2010. In order to improve rural tele-density the following is required:

- Greater synergy between all Government departments including Department of Space, service providers, infrastructure providers and the state governments
- Promoting sharing of infrastructure (active as well as passive)
- Identification of new spectrum bands for

rollout of broadband services in the rural areas.

6.18 Broadband service is important not only for the overall GDP growth but also for improving the quality of life through its social applications such as tele-education, tele-medicine, e-governance, as well as employment generation. For greater penetration of broadband, availability of affordable access device, issues regarding connectivity and local content will have to be addressed.

6.19 Right of Way (RoW) procedure is one of the major impediments in laying wire line infrastructure. Before laying the cables, the operators have to approach municipalities/ local authorities for obtaining RoW, which not only delays the roll out plans of the service providers but also increases their costs. Moreover, charges that municipalities/ local authorities levy for granting RoW are not uniform across the country. Telecom Regulatory Authority of India (TRAI) has recommended that a committee be formed at district level to study RoW requirement and it should evolve a duct-sharing mechanism among service providers. The Central government should also consider mandating the state governments to adopt uniform RoW procedures and streamline/rationalise RoW cost implementations. A uniform RoW framework may require a model approach.

6.20 The state of power supply continues to be a key concern in rural areas. A large number of villages either do not have electric connections or have a very limited power supply. A battery backup is not a sustainable solution as they need to be charged regularly. Direct powered generators are an option but these have to be maintained through power Base Transceivers Stations (BTS). It is estimated that over 35 per cent of the rural site's network operating expenses are due to costs associated with electricity and diesel. Power supply concerns in the rural areas could be addressed through exploring the viability of alternate source of fuel, including solar energy, wind power, bio-fuels and energy efficient BTS system.

Department of Information Technology

6.21 A robust communication corridor is the first and foremost requirement for successful implementation of the e-Governance projects being undertaken through the department's National e-Governance Plan (NeGP). It is a well recognised fact that high speed, high capacity, reliable intra-state and inter-state network connectivity is essential to deliver Government to Government (G2G), Government to Business (G2B) and Government to Citizen (G2C) services, especially for a vast country like India.

Goals/Programmes/Targets and achievement during 2009-10

6.22 The major programmes of DIT encompass the areas of e-governance, e-innovation, e-education, and e-security. The main components of the infrastructure developments under the Department of Information Technology contains core infrastructure under NeGP, Standardisation Testing and Quality Certification (STQC), Cyber Security & Education & Research Network (ERNET).

Figure 6.2: Common Service Center at Imphal West, Manipur

6.23 Common Services Centres (CSC) are envisioned as the front-end delivery points for government, private and social sector services to rural citizens of India. The objective is to develop a platform that can enable government, private and social sector organisations to integrate their social and commercial goals for the benefit of rural population in the remotest corners of the country through a combination of government as well as business services.

6.24 The Services Centre Agency (SCA) is the prime driver of the whole CSC eco-system. The activities of SCA include identifying the required applications and services; providing connectivity; identifying, selecting and training Village Level Entrepreneurs (VLE) and; establishing the CSCs, supplying, aggregating and updating content.

6.25 As of March 2010, 76,100 CSCs have been rolled out in 29 States. As many as 1,00,000 CSCs are expected to be established by September 2010.

6.26 The State Data Centre (SDC) is envisioned to be a 'shared, reliable and secured infrastructure created at the state/ UT level for hosting and managing the e-governance applications for state and its constituent departments'. The services hosted at SDC is expected to be rendered by the state through a common delivery platform seamlessly supported by the core connectivity infrastructure i.e. State Wide Area Network (SWAN) and CSC extending up to village level. This common infrastructure would thus obviate the need for each state department to create a separate and dedicated infrastructure of its own.

Figure 6.3*:View of a Data Centre*

6.27 State specific proposals have been approved for 31 states and Request for Proposals (RfPs) has been approved for 20 states. Bidding process has been completed in 13 states and the LoI has been issued by 11 states. Contracts have been awarded in nine of these 13 states. The bidding process is under progress in the remaining seven states. In six states, the RfP is under review whereas in another five, it is under preparation. Around 12 SDCs are expected to be become operational by December 2010 while the remaining will be completed by December 2011.

6.28 The basic objectives and goals of SWAN are:

- To establish State Wide Area Networks in all states / UTs linking state headquarters right up to the block / tehsil headquarters through district headquarters with minimum 2 Mbps connectivity.
- To increase the efficiency of government delivery mechanism and to optimise performance.
- Provide reliable, vertical and horizontal connectivity within the state administration to make the government more productive.
- Move toward the provisioning of converged communication services (voice, data and video) and the interconnection and inter-operation of network platforms.
- Provide a secure backbone for encouraging electronic transactions.
- Provide efficient service management.
- Ensure that every citizen in all the states has access to government service and information whenever and wherever they need it.

6.29 Individual SWAN proposals have been considered and approved for 33 states/ UTs till date. As on March 2010, SWANs in 19 states/UTs (Chandigarh, Chhattisgarh, Delhi, Haryana, Punjab, Himachal Pradesh, Tamil Nadu, Gujarat, Tripura, Karnataka, West Bengal, Sikkim, Jharkhand, Kerala, Puducherry, Maharashtra, Orissa, Uttar Pradesh and Lakshadweep) have become operational. The SWANs in Assam, Bihar, Madhya Pradesh, and Uttarakhand are in an advance stage of implementation. The SWANs in Andhra Pradesh, Arunachal Pradesh, Manipur and Meghalaya too are in the implementation stage. In Nagaland, Jammu & Kashmir, Rajasthan, and Mizoram, bidding process is on to establish the networks while at in Dadra & Nagar Haveli and Daman & Diu Request for Proposal is being looked into. Andaman & Nicobar Islands and Goa have opted out of SWAN scheme.

6.30 Standardisation, Testing and Quality Certification (STQC) Directorate is an important body for quality assurance in the field of Electronics & Information Technology. It provides testing, calibration, training and certification services through its well developed network of test laboratories spread across the country such as the Electronics Regional Test Labs (ERTL), Electronic Test & Development Centres (ETDC), STQC IT, Centre for Electronic Test Engineers (CETE) etc. Some of the major achievements of the Directorate during the year were:

- Common criteria test laboratory created for testing of security products at

Kolkata

- IT test laboratories with International accreditation established (A2LA USA) at Bengaluru and Kolkata.
- Solar and photovoltaic cell laboratory established to meet the objectives of Solar Mission.
- Software testing facilities for the e-Governance software and other critical applications established.

6.31 The STQC network of laboratories performed 30,147 test/ calibration jobs during 2009-10. It conducted 304 training courses and issued 31 management system certificates, and earned revenue of Rs.41.50 crore.

6.32 Initiatives in the area of cyber security are being undertaken to address six subjects - security R&D, security incidents – early warning & response, security policy - compliance and assurance, legal framework, I-security training and awareness and international cooperation. The following work was carried out in 2009-10:

- Legal framework: IT Act, 2008 enforced; Rules of important sections notified.
- Crisis management and emergency response - Crisis Management Plan for countering cyber attacks and cyber terrorism released. Cyber security mock drills are being conducted.
- Incident report and mitigation actions of computer emergency response team: 9,147 cyber security incidents handled, 74 advisories issued, 7,620 website defacement tracked.
- Capacity development/ training: Training centre set up at CBI and Kerala police to facilitate cyber crime investigation. 800 people trained, 24 workshops conducted on specialised cyber security topics.
- Cyber security tool development: Updated tool kit for cyber forensic V.3.0 developed to help investigate cyber crimes.
- International bilateral cooperation between India and USA, Japan and South Korea initiated.

6.33 Education & Research Network (ERNET) India has set up a pan-Indian terrestrial and satellite infrastructure with 15 points-of-presence providing aggregate internet bandwidth of 550 Mbps and dedicated International link of 175 Mbps to European Research Network. It has also

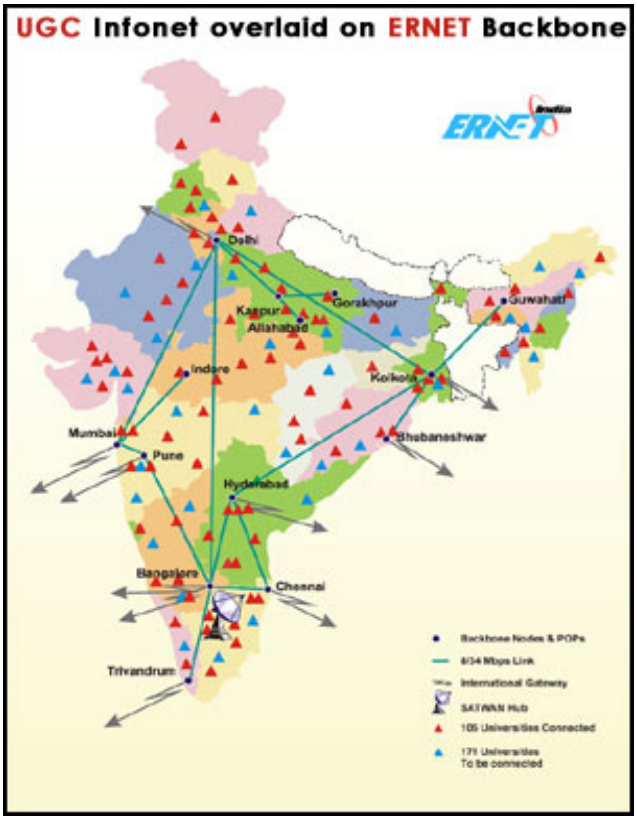

Figure 6.4 : UGC Infonet connecting Universities

implemented the Indian Grid –GARUDA –high-speed connectivity for the academic and research institutions under the extended foundation phase of GARUDA. ERNET is operating the following networks:

- UGC Infonet connecting 160 Universities.
- KVK-Net connecting 200 Krishi Vigyan Kendras of ICAR
- 200 Kendriya Vidyalayas and 100 Navodaya Vidyalayas are provided with VSAT connections.

6.34 National Knowledge Network (NKN) – Government has approved the setting up of a National Knowledge Network at a cost of Rs.5990 crore. This project is to be implemented by NIC over a time frame of ten years. The NKN will provide nationwide ultra high speed backbone – data network highway with gigabit capabilities. NKN will encourage knowledge sharing and knowledge transfer between stakeholders (scientists, researchers and students across the country).

6.35 Health education, grid computing, agriculture and e-governance are the main applications identified for implementation. In the initial phase, a core backbone consisting of 15 points-of-presence has been established with 2.5 Gbps capacity. Around 66 institutions of higher learning and advanced research have been established and six virtual classrooms have been set up.

Policy Issues

6.36 The Eleventh Plan's objective of faster and inclusive growth calls for many new initiatives to help the proliferation of IT technology as well as the industry. Some of the policy interventions needed are:

- Creation of integrated modern townships across the country (especially in tier II and tier III cities) for IT industries
- In order to achieve the objective of good governance through e-Governance, the government aims at transformation of G2C interface by mandating delivery of all public services through electronic means. Government may consider instituting suitable incentives to states which promote mandatory electronic delivery of services within a fixed time frame.
- Government may consider setting up of a National Electronic Mission to stimulate the growth of software and electronic hardware manufacturing industry in the country.
- Cyber security systems need to be strengthened.

Way Ahead

6.37 Establishment of State Data Centres, it has been observed, is delayed due to various factors. Time taken to procure a suitable site, availability of power, finalisation of RfP and placement of the order are some of these. For SDCs to be established in all states by December 2011, the states need to take integrated action.

6.38 The Department of Space, as part of Space Application Programme currently implements the Village Resource Centre (VRC) in about 473 locations. It is necessary

to integrate the concept and the facility in the SDC scheme.

6.39 It has been decided that the CSCs will be suitably repositioned to be a network of Panchayat level Bharat Nirman Common Service Centre, to provide government services to citizens in rural areas. For this, the CSCs are to be leveraged for various services for Bharat Nirman and other flagship schemes like National Rural Employment Guaranty Act (NREGA), National Rural Health Mission (NRHM) and Sarva Shiksha Abhiyan (SSA). Accordingly, Department of Information Technology is taking necessary steps to establish Common Services Centres in all 2,50,000 Panchayats in the next three years in consultation with the Departments / Ministries concerned with Bharat Nirman and other flagship schemes.

CHAPTER-7

Water Resources – Irrigation

Introduction

7.1 Expanding and rejuvenating the existing irrigation infrastructure is a necessary component in increasing food production and ensuring food security. The Eleventh Plan envisaged a 4 per cent growth in Agriculture and towards this end, targeted creating an irrigation potential of over 16 million hectare (m.ha.) through major, medium and minor projects. It has estimated 9 million hectare under Major and Medium Irrigation projects. These include Extension, Renovation and Modernisation (ERM) Projects. Minor irrigation works are to cover 7 million hectares. This includes 1 m.ha restored potential through renovation of water-bodies. However, a review of the Eleventh Plan performance shows a reduction in the annual rate of creation of irrigation potential from the targeted 3.2 m.ha. to an average rate of creation of 1.83 m.ha. Keeping this in view, the target for Eleventh Plan has to be scaled down to 9.5 m.ha. with 5.00 m.ha. under Major and Medium Irrigation and 4.5 m.ha. under Minor Irrigation. The allocations for 2007-10 (cumulative) were Rs 1,33,830 crore against the Eleventh Plan outlay of Rs 2,32,311 crore which represents 58 per cent realisation of overall outlay.

Goals for 2009-10 and likely achievements

7.2 During the Annual Plan 2009-10, the target for irrigation potential creation was 1.19 m.ha. under Major and Medium Irrigation and 0.751 m.ha. under the Minor Irrigation sector. The approved outlay for the year 2009-10 was Rs 38346.20 crore for state and central sectors.

Goals for year 2010-11 and over medium term

7.3 Keeping in line with the revised Eleventh Plan target, the proposed target for 2010-11, is 2.02 m.ha. Under Bharat Nirman, in the period 2005-09, 7.316 m.ha of new and restored irrigation potential was achieved against a target of 10 m.ha. of The balance is expected to be achieved by 2010-11.

Policy/Strategy adopted to achieve the goal

7.4 The following strategy has been adopted to achieve the goals of enhancing irrigation potential:

- Enhanced assistance under Accelerated Irrigation Benefit Programme (AIBP) to the states. Rs 11,500 crore has been allocated under this programme for 2010-11 against Rs 9700.00 crore in 2009-10.
- Providing liberal grant assistance under AIBP for drought prone areas, tribal areas and flood prone areas with 90 per cent grant component.

- The coverage under AIBP has been widened and accordingly projects benefiting tribal areas, drought prone areas, projects falling in the Prime Minister's agrarian distressed districts and projects in the states with irrigation development below national average are being included without insisting on the stipulation of completion of one project for inclusion of another project.
- Separate funding for repair, renovation and restoration of water bodies both through external assistance and through domestic support.
- Revamped command area development and water management programme in the Eleventh Plan to bridge the gap between the created and utilised potential.
- Convergence of NREGA funds for water sector for both Minor Irrigation and maintenance of irrigation systems.
- Encouraging formation of water users association through specific legislation in states for maintaining the irrigation systems, which have been handed over to them.
- Separate package for Bundelkhand area in Madhya Pradesh and Uttar Pradesh for development of water resources.
- Fourteen multipurpose projects under irrigation sector have been declared as national projects. Ninety per cent grant assistance of the total estimated cost is to be provided to them under AIBP. The three ongoing projects are Teesta Project in West Bengal, Gosikhurd in Maharashtra and Shahpur Kandi in Punjab.

7.5 Core macro policy issues for consideration and debate

- Emphasis on demand side management such as formation of water users associations, participatory irrigation management, command area development and selection of crops.
- Strategies and action plan for water use efficiency in irrigation distribution network, field application efficiency and efficiency in water management.
- Need for an integrated institutional setup for convergence of the institutions in water sector (various Ministries, departments etc).
- Inter-state water dispute settlement concept of Standing Tribunals.
- Interlinking of rivers.
- Control of pollution of water resources through effective measures.

7.6 Way Forward

- Protect and rehabilitate traditional water harvesting structures.
- Rapidly move towards rainwater harvesting and recharging of groundwater through investments under the Integrated Watershed Management Programme and MGNREGA.
- Bridge the gap between irrigation potential created and utilised in surface water irrigation projects.
- Improve efficiency of water use in AIBP projects through both management and technology innovations.

CHAPTER-8

Rural Water Supply and Sanitation

Rural Drinking Water Supply

8.1 As per the National Water Policy (2002), "Drinking Water" has been assigned the first priority in allocation of water amongst its various uses. The policy provides that adequate safe drinking water facilities should be provided to the entire population both in urban and in rural areas. The policy also states that drinking water needs of human beings and animals should be the first charge on any available water.

8.2 The Accelerated Rural Water Supply Programme (ARWSP),a Centrally Sponsored Scheme, was launched in 1972-73 and has continued since then. The programme has been re-structured and re-named as "National Rural Drinking Water Programme (NRDWP)" w.e.f. 1st April, 2009. The scheme is being funded on a 50:50 sharing basis between Centre and the States except for North-Eastern States and Jammu & Kashmir, where sharing is 90:10 between centre and the state.

8.3 Rural Drinking Water Supply is one of the six components of "Bharat Nirman" launched in 2005. Under the programme, safe drinking water is to be provided to all uncovered habitations by 2012. Under Bharat Nirman Phase-I from 2005-06 to 2008-09, the targets were to cover 55,067 'not covered' habitations, 3.31 lakh 'slipped back' habitations and 2.17 lakh 'quality affected' habitations. Against this, 52,040 'not covered' habitations and 3,46,061 'slipped back' habitations were covered and 2,59,628 'quality affected' habitations were addressed. The implementation of the Phase-II of the programme began in 2009-10. It is expected to be completed by 2011-12.

Rural Sanitation

8.4 Total Sanitation Campaign (TSC), a Centrally Sponsored Scheme (CSS), was launched to provide sanitation facilities in rural areas. The scheme includes Individual House Hold Latrines (IHHL), sanitary complexes, toilets for schools and anganwadis, rural sanitary marts and production centres. The funding pattern for these different components is different. The funding pattern for the major component, i.e. construction of Individual House Hold Latrines is 60:28:12 (Centre: State: Beneficiaries). The type of facilities to be provided is based on the need and full participation and involvement of Gram-panchayats, the people, particularly the women and the NGOs. Apart from government and Panchayati Raj institutions, sanitary hardware and equipment are also provided through ``rural sanitary marts''. The Eleventh Plan has envisaged 100 per cent sanitation by the end of the Plan period.

The programme will continue its focus on construction of low-cost household sanitary latrines with priority on conversion of dry latrines into wet latrines.

Targets and Achievements in 2009-10

Drinking Water Supply

8.5 All habitations in the country are to be covered by safe drinking water supply during the Eleventh Plan. In keeping pace with the Eleventh Plan objective, higher Plan outlay of Rs. 8,100 crore was allocated during the Annual Plan 2009-10 for Rural Water Supply under Central Plan. The targets/ achievements in "Rural Drinking Water Supply" during 2009-10 are given in Table 9.1.

Rural Sanitation

8.6 The outlay of Rs. 1200 crore including Rs. 200 crore for "Nirmal Gram Puraskars" was allocated during Annual Plan 2009-10 for Rural Sanitation under Central Plan. At the end of 2009-10, projects in 606 districts of different States in the country have been sanctioned for coverage under TSC. All these projects are targeted to be completed by 2012. As many as 1,25,19,937 Individual House Hold Latrines and 1,44,538 school toilets were built in 2009-10.

Goals for year 2010-11 and over medium term

Drinking Water Supply

8.7 All habitations in the country are to be covered by safe drinking water supply during the Eleventh Plan. 1.1 lakh slipped back habitations and 25,000 water quality affected habitations are targeted to be covered during 2010-11.The following strategy is being adopted for achieving the goal:

- Ensuring sustainable water supply sources and systems through rainwater harvesting and artificial ground water recharge, proper maintenance with the help of community participation/ PRIs.
- Addressing the water quality problems like fluoride, arsenic, iron, salinity, nitrate, etc. by identifying safe sources, adopting new technologies etc.
- Promoting decentralised operation and maintenance of water supply systems.
- Promoting Management Information System (MIS) for dissemination of information, transparency and accountability.
- Enhanced funding under NRDWP is required to cover all the population by safe drinking water supply for achieving the goal.
- Convergence of Mahatma Gandhi National Rural Employment Guarantee

Table 8.1: Targets and Achievements in Rural Drinking Water Supply during 2009-10

	Number of Habitations			
	Not Covered	Slipped Back	Water Quality affected	Total
Targets	586	1,23,408	34,595	**1,58,589**
Achieve-ments	251	1,20,049	32,129	**1,52,429**

Act (MGNREGA) and National Rural Health Mission (NRHM) funds for water supply sector for operation and maintenance of the systems.

Rural Sanitation

8.8 Total Sanitation Campaign is a demand driven scheme and, therefore, no annual targets are fixed in advance. However, the following strategies are adopted to ensure success of the campaign:

- Adopting area specific design and development for IHHLs.
- Ensuring sustainability of all types of latrines with the help of community participation/ PRIs.
- Motivating individual households and community to adopt cleanliness and personal hygiene practices.
- Adopting new and advanced technologies for Solid Waste Management
- Promoting local production centres for manufacturing and installation of sanitary hardware and other accessories.
- Convergence of MGNREGA and NRHM funds for operation and maintenance of the systems for sanitation sector.
- Ensuring community participation for sanitation and awareness through providing incentives like Nirmal Gram Puruskars.

8.9 **Core macro policy issues for consideration and debate**

- Need for water resources augmentation such as, rainwater harvesting and ground water recharge.
- Emphasis on efficient use of water, adoption of improved technologies, recycling and reuse of water, etc.
- Thrust on addressing water quality problems in drinking water sector e.g. excess fluoride, arsenic, iron, salinity, nitrate, etc.
- Review the norms of minimum drinking water supply for rural areas, which is 40 litres per capita per day.
- Handing over of the management of water supply systems to the Panchayats with technical support from the line-department.
- Need for an integrated institutional set up for convergence of the institutions in water sector (various Ministries, departments etc).

8.10 **Way Forward**

- Protect sources of drinking water both in terms of levels and quality.
- Ensure water supply for sustained use of toilets in rural areas.
- Improve systems of waste disposal.

CHAPTER-9

Housing & Urban Development

A. Urban Water Supply, Sanitation, Sewerage, and Solid Waste Management

9.1 As per the 2001 census, 285.35 million people, constituting 27.8 per cent of the total population reside in urban areas of the country. While the population of India has grown three times since Independence, its urban population has grown by five times. Although the degree of urbanisation in India is lower compared to other Asian countries, viz., China (32 per cent), Indonesia (37 per cent), Japan (78 per cent), South Korea (83 per cent), and Pakistan (35 per cent), there is a continued concentration of the urban population in large cities and existing city agglomerations (Class I cities with population over one lakh). These cities account for 68.9 per cent of the urban population.

9.2 Water supply and sanitation, a sound sewerage system and solid waste management are important basic needs that affect the quality of life of the people. The urban local bodies (ULB) in states and union territories are vested with the responsibility of providing these services. The ULBs are responsible for planning, design, implementation, operation and maintenance of water supply, sanitation, sewerage and solid waste management in urban areas. Besides financial assistance, the central government also guides policy formulation regarding the provision of these services.

9.3 Water supply and sanitation are accorded highest priority under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Total fund requirements for water supply, urban sewerage and sewage treatment, urban drainage, solid waste management, etc. is estimated to the tune of Rs.1,29,237 crore. The Eleventh Plan had estimated that urban water supply alone would require investment of Rs 53,666 crore, and sanitation including sewerage treatment, drainage and solid waste management, an investment of another Rs 75,553 crore to achieve 100 per cent coverage of population with urban water supply and 100 per cent population coverage for sewerage, sewage treatment and low cost sanitation facilities in urban areas.

9.4 With the launching of JNNURM in 2005, the erstwhile schemes for water supply and sanitation, e.g. Accelerated Urban Water Supply Programme (AUWSP), Mega Cities Scheme and Integrated Development of Small & Medium Towns (IDSMT) were subsumed in a new Mission Mode project. Central assistance under JNNURM is conditional, and the States and the ULBs have to sign agreements for implementing reforms in a time bound manner, co-terminus with the seven year Mission period.

Jawaharlal Nehru National Urban Renewal Mission (JNNURM) - Urban Infrastructure & Governance (UIG)

9.5 The Urban Infrastructure & Governance (UIG) component of JNNURM addresses inter-alia the needs of water supply, sanitation, sewerage and solid waste management in the urban areas for 65 Mission cities that have been identified including 7 megacities, 28 million plus cities and 30 identified cities/urban agglomerations. Investment envisaged for UIG: Additional Central Assistance (ACA) provision for the entire Jawaharlal Nehru National Urban Mission for the Mission Cities is Rs. 50,000 crore, for the seven year Mission period (2005-2012). The ACA provision for the Sub-Mission for Urban Infrastructure and Governance (UIG) is Rs. 25,500 crore. During 2008-2009, an additional allocation of Rs. 6,000 crore was provided for UIG taking the total provision for seven years to Rs. 31,500 crore.

9.6 Under the sub-Mission for Urban Infrastructure and Governance, 524 projects worth Rs.58283.33 crore have been sanctioned for which Rs. 27237 crore has been provided through Additional Central Assistance (ACA). The details of the sanctioned projects as on March, 2010 are given in the Table 9.1.

9.7 So far, 21 projects of water supply, 10 for sewerage, 5 for drainage/storm water drain and 1 for solid waste management have been completed. Other projects are under various stages of implementation.

JNNURM - Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT)

9.8 The Urban Infrastructure Development Scheme for Small & Medium Towns (UIDSSSMT) aims at improvement of urban infrastructure in towns and cities in a planned manner. The scheme applies to all

Table 9.1: Implementation status of UIG projects as on March, 2010

Sl. No.	Sector	No. of projects sanctioned	Total Approved Cost (Rs. in crore)
1	Water supply	151	19,565.66
2	Sewerage	110	13,476.45
3	Drainage & Storm Water	71	8,464.58
4	Solid Waste Management	41	2,236.01
5	Roads & Flyovers	94	7,572.49
6	Public Transport System	19	4,770.97
7	Other Urban Transport	15	805.88
8	Urban Renewal	11	487.90
9	Development of Heritage Areas	5	210.46
10	Preservation of Water Bodies	4	116.71
11	Parking	3	576.22
	Total	524	58,283.33

cities/towns as per 2001 census, excepting the 65 cities/towns covered under JNNURM. Total allocation for the seven year period was Rs.6,400 crore with additional allocation of Rs.5,000 crore provided in 2008-09, the total provision for seven years is Rs. 11,400 crore.

9.9 ***Implementation status of projects (as on March 2010)*** - An amount of Rs. 6119.52 crore has been released for 753 projects with an approved cost of Rs.12824.63 crore. These include:

- Water Supply -- 416 projects at a cost of Rs 7822.00 crore
- Sewerage -- 97 projects at a cost of Rs 2863.50 crore
- Storm Water Drains – 65 projects at a cost of Rs 761.51 crore of Preservation of Water Bodies -- 9 projects at a cost of Rs. 30.03 crore,
- Solid Waste Management -- 51 projects at a cost of Rs 327.02 crore
- Urban Renewal/Heritage -- 10 projects at a cost of Rs. 42.46 crore
- of Prevention of Soil Erosion -- 1 project at a cost of Rs. 1.89 crore
- Parking -- 1 project at a cost of Rs. 0.37 crore and
- Roads --103 projects at a cost of Rs. 975.36 crore.

A total of 50 water supply and 5 storm water drainage projects have so far been completed.

9.10 **Annual Plan 2009-10 -** An amount of Rs. 299 crore has been released during Annual Plan 2009-10 against the allocation of Rs. 3082.82 crore which was reduced to Rs. 494.15 crore at RE stage. As releases are made on implementation of reforms, the amount could not be released to those states which had not implemented the reforms.

9.11 **Role of State and Private Sector** - One of the identified strategies for the Mission was to incorporate private sector

Table 9.2: Status of Implementation of projects approved under JNNURM in 2009-10

(Rs. in lakh)

S. No	Sector	No. of Projects Sanctioned in 2009-10	Total Approved cost of the projects sanctioned in 2009-10	ACA released in 2009-10 (including for the projects sanctioned during 2005-08)	Total ACA committed in 2009-10
1	Water supply	13	184,248.26	148,251.34	81,200.29
2	Sewerage	11	134,277.08	79,728.67	69,297.33
3	Storm water drainage	12	140,502.82	61,846.28	70,149.11
4	Solid waste management	1	4,986.86	14,163.42	1,745.4
	Total	**37**	**464,015.02**	**303,989.71**	**222,392.13**

efficiencies and attract private capital in the development, arrangement and financing of projects, through Public Private Partnership (PPP). To achieve this, Mission is facilitating cities to undertake reforms for improvement of governance, financial sustainability and, land and market related reforms. Encouraging private partnership and PPP models for providing various services is one of the key reforms under the Mission. The Mission has also prepared a toolkit for guiding cities for preparing projects on PPP basis. So far, 68 projects at a total cost of Rs 7858 crore have been approved and either undertaken on PPP Mode or has a component of PPP as shown in Table 10.2.

9.12 The Mission has observed that the sectors most amenable to PPP under JNNURM are Solid Waste Management (SWM) and transportation, followed by water supply and sewerage.

9.13 ***BRIMSTOWAD Project*** **-** Brihan Mumbai Storm Water Drainage Project (BRIMSTOWAD) was approved for Rs.1200.53 crore under Special Plan Assistance. The project involved rehabilitation of old storm water drainage system, widening and training of Nallah and pumping stations. Due to increase in costs, the total expenditure is now expected to be Rs.2250 crore. The project is being implemented by Municipal Corporation of Greater Mumbai. The project was scheduled to be completed by March 2010, but has been delayed. Nearly 26,000 families will be affected by the project work and need to be rehabilitated. Though expected to be completed by March 2011 it could be further delayed if the rehabilitation work is not carried out in time. So far, ACA of Rs.500 crore (Rs.400 crore in 2007-08 and Rs.100 crore in 2008-09) has been released. State Government had requested for Rs.500 crore for 2009-10. The actual progress is as under:-

- The work of widening and training of Nallah of Phase-1 has commenced and 27 works have been awarded. All the works are likely to be completed by March, 2012.

9.14 **Mumbai IV (Middle Vaitrana) Water Supply Project:** The JNNURM project was approved by Cabinet Committee on Economic Affairs (CCEA) in February 2007 at a cost of Rs.1329.50 crore with admissible ACA of Rs.465.32 crore. The project is

Table 9.3: Sector-wise approval of projects of PPP Under JNNURM

(Rs. in lakh)

Sl. No	Sectors	Projects	Approved Cost
1	Solid Waste Management	40	218,614.29
2	Water Supply	5	72,897.63
3	Sewerage	2	6,555.13
4	Others	2	10,642.43
5	BRTS	19	477,096.64
	Total	68	785,806.12

being implemented by the Maharashtra government. Against the approved cost of Rs.1329.50 crore, there was cost escalation of about 51 per cent (Rs.2006.65 crore). Rs.348.99 crore has already been released., Forty per cent of the work had been completed by March 2010. Fourth and final instalment of ACA will be released only after the completion of the project. The project is now scheduled to be completed by April, 2012. Under JNNURM guidelines, any cost escalation is to be borne by the state government.

B. Housing and Slum Development

9.15 The Eleventh Plan document estimated the urban housing shortage at 24.7 million units of which 99 per cent prevailed in the economic weaker sections and lower income groups. Recognising the magnitude of the problem, a National Housing and Habitat Policy was put forth in 2007. It advocated a demand driven approach ranging from subsidy-based housing schemes to cost recovery-cum-subsidy schemes for housing through pro active financial policy including micro finance and self help group programmes. The following initiatives have been taken in Eleventh Plan to deal with the shortage of housing.

JNNURM: Basic Services to the Urban Poor (BSUP) and Integrated Housing & Slum Development Programme (IHSDP)

9.16 Under the programme, integrated development of slums is undertaken in the identified cities. The Sub-Mission is to be implemented in 65 Mission cities, over a period of seven years beginning 2005-06. Central Assistance ranging from 50 to 90 per cent, depending upon the city, is provided as ACA in two instalments. Beneficiary contribution is 12 per cent and for SC/ST/BC/OBC/PH and other weaker sections, it is 10 per cent of the total cost. Access to Central assistance is linked to implementation of the urban reform agenda. Under IHSDP, integrated development of slums is undertaken in all urban areas except the 65 identified Mission cities already covered under BSUP.

9.17 An allocation of Rs.13650 crore for BSUP and Rs. 4450 crore for IHSDP was

Table 9.4: Cumulative Physical and Financial Progress under BSUP & IHSDP

(January 2010)

	Commitment & Release (in Crore)		
	BSUP	IHSDP	Total
7 Year Allocation (RE)	16356.35	6828.31	23184.66
ACA Commitment	13283.84	5961.80	19245.64
% Commitment	81.2%	87.30%	83.01%
Release	4671.69	3194.25	7865.94
% Release (Release vs Commitment)	34.03%	51.11%	39.33%
No of projects approved	469	864	1333
Total project cost approved	26297.49	8678.04	34975.53
No of States/UTs covered	31	31	
No of Cities/ Towns covered	63	761	824
No of DUs approved	1019217	470288	1489505
No. of DUs completed	158420	58945	217365

made for JNNURM for the entire mission period. Further, an additional allocation of Rs. 2682 crore for BSUP and Rs. 2361 crore for IHSDP has been approved in 2009-10.

9.18 The two programmes emphasise on providing utilities to the urban poor through integrated development of slums with the help of projects for shelter, basic services and other related civic amenities. The approved projects relate to physical amenities and infrastructure such as water supply, sewerage, storm water drain, roads, multi-purpose community centres and parks.

9.19 During 2009-10, 14 projects were sanctioned under BSUP and 121 projects under IHSDP. In all 469 projects and 864 projects have been sanctioned under BSUP and IHSDP so far.. Likewise, 29,105 dwelling units under BSUP and 46,972 dwelling units under IHSDP were approved in 2009-10, costing Rs.1400.34 crore and Rs.1036.91 crore respectively.

9.20 **Interest Subsidy Scheme for Housing the Urban Poor (ISSHUP) -** The scheme is an initiative to supplement the ongoing efforts to address the housing shortage. Under the scheme, interest subsidy of 5 per cent per annum will be given for loans up to 1 lakh taken during the Eleventh Plan. The loan repayment would be 15-20 years. The details of the scheme are still in the process of being finalised by the Ministry of Housing & Urban Poverty Alleviation. This was partly the reason for the low expenditure of Rs. 0.58 crore in 2009-10. In fact, against the Eleventh Plan allocation of Rs.1378 crore, Rs.180.59 crore was approved for 2009-10 which was reduced to Rs. 1.00 crore at RE stage. The poor uptake in this scheme is also because the challenges of providing housing for the poor are many and an integrated approach is required.

9.21 **Rajiv Awaas Yojana** - The scheme was announced by the Honourable President in her address to the Parliament in June 2009 with a vision to make the country slum free. The details of the scheme including coverage of cities, availability of land, admissible component, financing mechanism, involvement of PPP, etc. are being worked out. Rs.150 crore has been earmarked for RAY for 2009-10 for making preliminary arrangements like identification of slum dwellers, conduct of surveys of slum dwellers, etc.

C. Urban Transport

9.22 National Urban Transport Policy (NUTP) 2006 seeks to promote integrated land use and transport planning and offers Central Government's financial support for investments in public transport and infrastructure. It encourages capacity building at institutional and individual levels. To support preparation of Detailed Project Reports (DPRs) for Urban Transport Projects, the government has enhanced the central financial assistance from 40 per cent to 80 per cent. The schemes cover a wide gamut of urban transport matters including comprehensive and integrated land use and mobility plans, Intelligent Transport System (ITS), launching of awareness campaign in line with National Urban Transport Policy, 2006. Against the Eleventh Plan allocation

of Rs 152 crore, the anticipated expenditure for the first three years is Rs 19.83 crore (13.04 per cent). An expenditure of Rs.16.26 crore was incurred in 2009-10 against the allocation of Rs.24 crore for the year. . In addition, a new scheme for capacity building for sustainable urban transport at national, state and city level as well as institutional level has been initiated in 2009-10.

9.23 **Funding of urban transport projects under JNNURM -** Under the Second Stimulus Package announced by the Government, it was decided that the States/UTs, as a one-time measure, would be provided assistance for Mission cities under UIG component of JNNURM to strengthen their urban transport system. Accordingly, Ministry of Urban Development has approved 15,260 buses with admissible central assistance of Rs.2,092 crore out of which Rs.1,037 crore has already been released in Annual Plan 2009-10. The states are in the process of procuring the buses and orders have been placed.

9.24 Further, under the UIG component of JNNURM, 19 projects with an approved cost of Rs.4771 crore have been sanctioned for improvement in public transport system like roads, flyovers, Road-Over-Bridges (ROBs). Another 15 projects related to urban transport such as BRTS, traffic improvement and parking have been sanctioned with an approved cost of Rs.806 crore. . As on March 2010, 21 projects have been completed.

Physical and financial progress of Metro projects:

Delhi Metro

(i) Delhi MRTS Project Phase II:

9.25 Government of India had approved the Delhi Metro Rail Corporation (DMRC) Phase II proposal in March 2006 at an estimated cost of Rs.8118 crore. With revised alignment from IIT to Qutab Minar at an estimated cost of Rs.558 crore, the total cost is Rs.8676 crore for a stretch of 54.675 kms. With the revision of Inderlok-Mundka Corridor (to be taken on standard

Table – 9.5:Corridor-wise physical progress as on March 2010

Sl. No.	Corridor	Length (Kms.)	Target Date	Physical Progress
1.	Vishwavidyalaya-Jehangirpuri	6.36	31.10.2009	Commissioned on 4.2.2009
2.	Central Secretariat-Qutab Minar	12.53	30.6.2010	In progress
3.	Shahdara-Dilshad Ganden	3.09	31.12.2009	Commissioned on 4.6.2009
4.	Indraprastha - New Ashok Nagar	8.07	30.06.2009	Commissioned on 13.11.2009
5.	Yamuna Bank – Anand Vihar	6.17	31.12.2009	Commissioned on 6.1.2010
6.	(a) Kirti Nagar – Ashok Park (b) Inderlok – Mudrika	3.32 15.15	30.6.2010 31.03.2010	In progress Commissioned

gauge from earlier proposal of broad gauge), the revised cost for Phase-II is Rs.8605.36 crore. On inclusion of rolling stock cost of Rs.3086 crore, the grand total for Phase II is Rs.11691.36 crore.

(ii) Extension of DMRC Phase-II to Gurgaon:

9.26 Extension of Delhi Metro to Gurgaon was approved in October 2006 at an estimated cost of Rs.1589.44 crore (Rs.763 crore for Haryana portion, Rs.818 crore for Delhi portion and Rs.8.44 crore for escalators, etc.). By March 2010, 95 per cent of the work was completed. During 2009-10, equity of Rs.27.75 crore, subordinate debt Rs.15 crore and PTA of Rs.181 crore (total Rs.223.75 crore) have been released and the cumulative amount released so far is Rs. 471.50 crore.

(iii) Central Secretariat – Badarpur:

9.27 The corridor was approved at an estimated cost of Rs. 4012 crore to be completed by September 2010. As on March 2010, 70 per cent of the work was completed. During 2009-10, equity of Rs.153.37 crore and PTA of Rs. 900 crore (total Rs.1053.37 crore) have been released and the cumulative amount released so far is Rs. 2459.38 crore.

(iv) High Speed Express Link from New Delhi Railway Station to IGI Airport:

9.28 High Speed Express Link of 19.2 km from New Delhi Railway Station to Airport was approved at an estimated cost of Rs. 3076 crore. There is a PPP arrangement between DMRC and Reliance Energy & CAF. While civil works are to be carried out by the DMRC, the system works are with the Concessionaire. By March 2010, 90 per cent of the civil work had been carried out. The civil works are likely to be completed by September 2010,. During 2009-10, equity of Rs.199 crore was released bringing the cumulative amount released so far to Rs.599 crore.

(v) Extension of Express Link from Airport to Dwarka 21:

9.29 The 3.5 km link was approved in January 2008 at a completion cost of Rs.793 crore. By March 2010, 90 per cent of the civil work was completed. The project is targeted for completion by September 2010**.** During 2009-10, equity of Rs.52.86 crore was released. The cumulative amount released so far is Rs.158.60 crore.

(vi) Extension of Delhi Metro Phase-II to Noida:

9.30 Extension of Delhi Metro from New Ashok Nagar in Delhi to Sector 32, Noida (7 km.) was approved at an estimated cost of Rs.827 crore to be completed by June, 2009. The project was commissioned in November 2009. During 2009-10, equity of Rs.71.30 crore and subordinate debt of Rs.27.70 crore (total Rs.99 crore) was released. The cumulative amount released so far for the project is Rs.177.40 crore.

(vii) Extension of Metro link from Dwarka Sector 9 to Dwarka Sector 21:

9.31 The 2.76 km link was approved in October 2008 at a completion cost of Rs.356.11 crore and as per March 2010, 89 per cent of the work has been completed. The project is now targeted for completion by September 2010. As per the financing plan, capital cost of Rs.275 crore will be

funded by DDA and the cost of rolling stocks of Rs.81.11 crore will be met by DMRC.

Bangaluru Metro Rail Project:

9.32 Bangaluru Metro (42.3 kms) from Yashwantpur North to Puttenahally was approved in May 2006 at a completion cost of Rs.8158 crore. The project is targeted to be completed by September 2012. As regards physical targets up to March, 2010 all stations in Reach 1, rolling stocks and electrical transactions will be commissioned by March, 2011. Equity of Rs.150 crore, subordinate debt of Rs.1 crore and Pass through Assistance (PTA) of Rs.235 crore was released in 2009-10. The cumulative releases are Rs.820 crore.

Kolkata Metro:

9.33 Kolkata's East West Metro Corridor, covering a length of 13.77 kms from Howrah railway station to Salt Lake Sector V was approved in July 2008 at an estimated cost of Rs.4676 crore and with addition of extension of alignment by about 900 mts the revised completion cost is Rs.4874.58 crore to be completed by 2014-15. More than 250 piles, 11 piers, utility shifting have been completed; design consultants have been appointed and detailed designs for six stations have been finalised. Pre-qualification for S&T and power supply system tenders have been issued and pre-bid meetings held. Equity of Rs.55 crore, subordinate debt of Rs.1 crore and PTA Rs.60 crore have been released during 2009-10. The cumulative releases so far amount to Rs.128 crore.

Table 9.6: Summary of financial progress in respect of Delhi MRTS projects for 2009-10

(Rs. in crore)

Item	Allocation	Sanction
Equity	528.00	487.47
Subordinate Debt	64.60	59.60
Pass through assistance	1088.00	1088.00
Grant	89.60	89.60
Total	**1770.20**	**1724.67**

Chennai Metro:

9.34 Chennai Metro Rail Project (46.5 kms) was approved in January 2009 at an estimated cost of Rs.14600 crore to be completed by 2014-15. Managing Directors and Board of Directors for execution of Chennai Metro project have been nominated though Memorandum of Understanding is yet to be signed. Tenders for elevated via-duct packages of 10 kms are under scrutiny. Pre-qualification exercise is on for procurement of rolling stock, underground tunnelling and station works. Equity of Rs.51.79 crore, subordinate debt of Rs.1 crore and PTA of Rs.100 crore have been released during 2009-10.

LIST OF ABBREVIATIONS

AAI	Airport Authority of India
ACA	Additional Central Assistance
AERA	Airport Economic Regulatory Authority
AIBP	Accelerated Irrigation Benefit Programme
ALHW	Andaman &LakshwadeepHarvour Works
APDRP	Accelerated Power Development and Reforms Programme
ARWSP	Accelerated Rural Water Supply Programme
ATC	Air Traffic Control
ATM	Asynchronous Transfer Mode
AUWSP	Accelerated Urban Water Supply Programme
BC	Backward Classes
BG	Broad Gauge
BIAL	Bangalore International Airport Pvt. Ltd.
BoP	Balance of Plants
BOT	Build, Operate and Transfer
BPL	Below Poverty Line
BRIMSTOWAD	Brihan Mumbai Storm Water Drainage Project
BRTS	Bus Rapid Transit System
BSNL	Bharat Sanchar Nigam Limited
BSUP	Basic Services to the Urban Poor
BTS	Base Transceivers Station
CAGR	Compounded Annual Growth Rate
C-DoT	Center for Development of Telematics
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CETE	Centre for Electronic Test Engineers
CIL	Coal India Limited
CMS	Centralized Monitoring System
CNS	Communication, Navigation and Surveillance
CONCOR	Container Corporation of India Ltd.
CSI	ChhatarpatiShivaji International
CSS	Centrally Sponsored Scheme
CWC	Central Warehousing Corporation
DFC	Dedicated Freight Corridor
DIAL	Delhi International Airport Pvt. Ltd.
DIT	Department of Information Technology
DME	Distance Measuring Equipment
DMRC	Delhi Metro Rail Corporation Ltd.
DoT	Department of Telecommunications

DPRs	Detailed Project Reports
DSLAM	Digital Subscriber Line Access Multiplexed
DUs	Dwelling Units
DVOR	Dopler VHF Omni Range
EAP	Externally Aided Project
EIA	Environmental Impact Assessment
EMU	Electrical Multiple Units
ERM	Extension, Renovation & Modernization
ERNET	Education & Research Network
ERTL	Electronics Regional Test Labs
ETDC	Electronic Test & Development Centers
EWS	Economically Weaker Sections
FAX	Facisimile
FIDS	Flight Information and Display System
FTTH	Fiber-To-The Home
GAGAN	Geo Augmented Navigation
GBS	Gross Budgetary Support
G2G	Government to Government
G2B	Government to Business
G2C	Government to Citizen
GPS	Global Positioning System
GQ	Golden Quadrilateral
GSE	Ground Support Equipment
GSM	Global System for Mobile
HIAL	Hyderabad International Airport Pvt. Ltd.
ICT	Information and Communication Technology
ICTT	International Container Transshipment Terminal
IDSMT	Integrated Development of Small & Medium Towns
IEBR	Internal Extra Budgetary Resources
IGI	Indira Gandhi International
IHHL	Individual House Hold Laternines
IHSDP	Integrated Housing and Slum Development Programme
ILS	Instrument Landing System
IR	Indian Railway
ISD	International Sub: is scriber Dialling
ISRO	Indian Space Research Organization
ISSHUP	Interest Subsidy Scheme for Housing the Urban Poor
ITS	Intelligent Transport System
JICA	Japan International Cooperation Agency
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
JNPT	Jawaharlal Nehru Port Trust
Kms.	Kilometers
LA	land acquisition

LIG	Lower Income Groups
LNG	Liquefied Natural Gas
LWE	Left Wing Extremism
LWIS	Liberalised Wagon Investment Scheme
MCP	Mandatory Capital Projects
MEMU	Mainline Electrical Multiple Use
MG	Meter Gauge
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MoP	Ministry of Power
MIAL	Mumbai International Airport Pvt. Ltd.
MRTS	Mass Rapid Transit System
MT	Million Tonnes
MTNL	Mahanagar Telephone Nigam Limited
MTPA	Million Tone Per Annum
MYT	Multi Year Tariff
NeGP	National e-Governance Plan
NIC	National Informatics Centre
NH	National Highways
NHAI	National Highways Authority of India
NHDP	National Highways Development Project
NH(O)	National Highways(Original)
NIO	National Institute of Oceanography
NKN	National Knowledge Network
NRDWP	National Rural Drinking Water Programme
NRHM	National Rural Health Mission
NSEW	North-South & East-West Corridors
NTPC	National Thermal Power Corporation
NUTP	National Urban Transport Policy
NVVN	NTPC VidyutVyapar Nigam Ltd.
OBC	Other Backward Classes
OFC	Optical Fiber Cable
PCO	Public Call Office
PDC	Projected Date of Completion
PH	Physically Handicapped
PIUs	Programme Implementation Units
PLF	Plant Load Factor
PMGSY	PradhanMantri Gram SadakYojana
PMQA	Project Monitoring and Quality Assurance
PPA	Power Purchase Agreement
PPMP	Power Project Monitoring Panel
PPP	Public Private Partnership
PRIs	Panchayati Raj Institutions
PSU	Public sector undertakings

PTA	Pass Through Assistance
RAY	Rajiv AwasYojana
RCC	Reinforced Cement Concrete
RCF	Rail Coach Factory
RE	Revised Estimates
RFQ	Request for Qualification
RFP	Request for Proposals
RGGVY	Rajiv Gandhi GrameenVidyutikaranYojana
RKm	Route Kilometer
RoW	Right of Way
RPO	Renewable Purchase Obligation
SARDP-NE	Special Accelerated Road Development Programme in North-East
SBAS	Satellite Based Augmentation System
SC	Schedlued Castes
SCA	Services Centre Agency
SDC	State Data Centre
SERCs	State Electricity Regulatory Commissions
SHP	Small Hydropower Projects
SSA	SarvaShikshaAbhiyan
ST	Scheduled Tribes
STD	Subscriber Trunk Dialling
STQC	Standardization Testing and Quality Certification
SWAN	State Wide Area Network
SWM	Solid Waste Management
TRP	Tsunami Rehabilitation Programme
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
UIG	Urban Infrastructure & Governance
ULBs	Urban Local Bodies
UTs	Union Territories
TAX	Trunk Automatic Exchange
T&D	Transmission and Distribution
TKM	Track Kilometer
TPC	Total Project Cost
TRAI	Telecom Regulatory Authority of India
TSC	Total Sanitation Campaign
UMPPs	Ultra Mega Power Projects
USO	Universal Service Obligation
VGF	viability gap funding
VLE	Village Level Entrepreneurs
VRC	Village Resource Centre
VPT	Village Public Telephones
WLL	Wireless Local Loop